

THE
MEDICAL JOURNAL
OF AUSTRALIA

(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association.

VOL. II.—5TH YEAR—No. 1.

GENERAL LIBRARY
AUG 12 1918

UNIV. OF MICH.

SYDNEY: SATURDAY, JULY 6, 1918.

PRICE 6D.

Allen & Hanburys Ltd.

MAKERS OF

SURGICAL INSTRUMENTS

SUPPLIERS TO

H.M. ARMY and H.M. NAVY

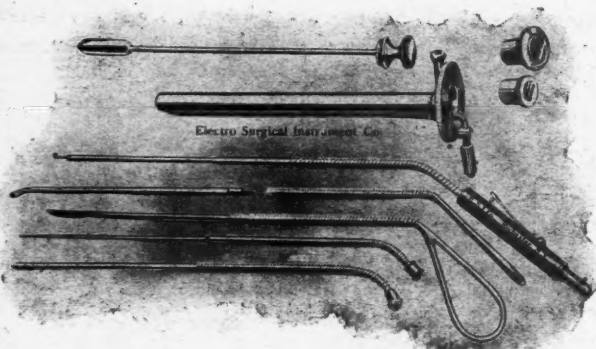
ALL INSTRUMENTS ARE OF THE

BEST BRITISH WORKMANSHIP

AUSTRALASIAN BRANCH:

B.M.A. BUILDING, ELIZABETH STREET, SYDNEY

Cystoscopes, Urethroscopes and Urethral Instruments



Gordon's Urethroscope.

Swinburne's Urethroscope (Dilating). Size 24F. Complete with cords and bulb £4

Koch's Urethroscope (complete with cords) £3

"W. F. Braasch" Direct Catheterization Cystoscope, with Ureteral Catheters, complete in leather case £9/10/-

"W. F. Braasch" Indirect Catheterization Cystoscope, with Ureteral Catheters, complete in case £15/10/-

Brown Buerger Combination Cystoscope, with Observation and Catheterization Telescopes, complete in case £34

"G. S. Gordon" Urethroscope, complete with instruments, dilating bulb and cords. Size of Urethroscope 13c.m. long and 25 French in calibre £8

ELLIOTT BROS., LTD., Showrooms: O'Connell Street, Sydney

Overland

THE CAR .. OF .. QUALITY

Can be Obtained with Colonial Bodies
Built to Suit Your Special Requirements

Single-Seater or } On COUNTRY CLUB Chassis,
Four-Seater } 20/25 H.P. Wire Wheels

Single-Seater, Four or } On MODEL 90 Chassis,
Five-Seater } 20/25 H.P. Detachable Rims

ALSO
MODEL 85B Chassis,
35 H.P. Detachable Rims

All Models fitted with
Cantilever Springs

Our Exhibit of Colonial Bodies was the Talk of the Show

Send for particulars.

ALICK McNEIL,
General Manager.

Three-colour Illustrated
Catalogue Free.

GARRATTS LTD.

173-175 ELIZABETH ST., SYDNEY

THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. II.—5TH YEAR.

SYDNEY: SATURDAY, JULY 6, 1918.

No. 1.

THE VALUE OF THE RÖNTGEN RAYS IN DISEASES OF THE ALIMENTARY TRACT.¹

By **Herschel Harris, M.B., Ch.M. (Sydney)**,
Honorary Member of the Röntgen Ray Society of America;
Honorary Consulting Radiographer, Sydney Hospital;
Honorary Radiographer, Royal Prince Alfred
Hospital; Honorary Radiographer, Royal
Alexandra Hospital for Children.

The object of this paper is, first of all, to describe the technique employed in these cases and, secondly, to explain how various data are collected, enabling us to form certain conclusions.

The Opaque Meal.

In order to visualize the various parts of the alimentary tract, it is necessary to introduce a substance, which is opaque to the Röntgen rays. For this purpose a bismuth salt was employed in the early days, preferably the oxychloride; hence the original term, bismuth meal. During the past few years, however, owing to the excessive cost of this drug, pure barium sulphate has taken its place, and has furnished equally satisfactory results. The barium sulphate is added to a vehicle. It is desirable that the mixture possess the following quantities:—

1. It should be palatable.
2. It should be viscid enough to hold the opaque substance in good suspension.
3. It should not be too thick to fill small recesses.
4. It should not unduly stimulate gastric secretion.
5. It should neither accelerate nor retard motility.

Two forms of meal are employed in our practice. The first is the motor meal, comprising 600 c.cm. of gruel made with milk, mixed with 75 grammes of pure barium sulphate, flavoured with vanilla and sugar *ad lib*. The object of this meal is to approximate to an ordinary meal, and thereby one can estimate the period occupied by the stomach in emptying. The second is the morphological meal, composed of 600 c.cm., to which is added 75 grammes of pure barium sulphate and a little vanilla. The object of this thin meal is to visualize any craters or irregularities that may be present. Sometimes a third meal of water and barium is given to visualize the duodenum if it has not been previously seen.

Carman, of the Mayo Clinic, estimates that a meal such as the motor meal mentioned, should be all passed out of the stomach within six hours, that the head of the meal should reach the caecum within four hours, the hepatic flexure within six hours, the splenic flexure within nine hours, and the pelvic colon by twelve hours.

Conclusions are, therefore, to some extent, drawn from such an estimate, other things being equal.

Before an opaque meal is taken, it is desirable for a patient to undergo a certain preparation, and at the same time the conditions should as nearly as possible approximate to normal. Carman usually examines the stomach after a patient has had a test meal and the stomach has been washed out. Our plan is to make the patient drink hot water, hoping thereby to wash away any mucus or *débris*, and thus more readily to visualize any irregularities.

The patient is supplied with the following list of instructions:—

Directions Concerning Opaque Meal.

1. For at least twenty-four hours before and during the time of the opaque meal, laxatives and enemata should be omitted, except by special instruction.
2. On the morning of the opaque meal, no food nor medicines should be taken until after the opaque meal has been given in the X-ray examination room.
3. After the opaque meal, no food nor drink must be taken until permission be given to do so.
4. A tumblerful of hot water should be taken the night previous to the opaque meal and also early on the morning of the opaque meal.

Hospital versus Private Work.

The thorough observation of an opaque meal is necessarily very tedious and prolonged.

It can readily be understood that in order to cope with the amount of work in hospital a method must be employed which will deal most rapidly with the cases under observation, and at the same time enable us to arrive at reliable conclusions.

The method in hospital practice is for the patient to have the meal administered five or six hours previous to the visiting hour of the honorary Radiographer. The patient is kept in a separate cubicle the whole time to make sure that he does not eat anything else, and most of the time the patient is in the recumbent position.

The patient is examined by the resident Radiographer at once, and a plate is taken. Then at subsequent intervals other examinations are made to observe how the stomach is emptying.

When the honorary Radiographer arrives he makes an examination of the case, and then a fluid meal is administered for the morphological test.

If the intestines are to be examined, the resident Radiographer carries this out the following day. It will thus be seen how necessary it is for an up-to-date hospital to have a competent staff in the X-ray department. Satisfactory results of a continuous nature will never be obtained until permanent assistants are employed in addition to resident medical officers. Some day this will be recognized, and what should have been done long ago will be done eventually.

In private practice, the patient arrives early in

¹ Read at a Meeting of the New South Wales Branch of the British Medical Association, on May 31, 1918.

the morning, is given the opaque meal, and is then frequently examined till the stomach empties, or up to a period of six hours. Some stomachs empty very rapidly, whilst others occupy a considerable time. Hence frequent observations are necessary.

In certain cases it is desirable for patients to lie on the right side for several hours to visualize the duodenum, and also to assist in the emptying of the stomach. Other patients are allowed to walk about. Plates are taken when deemed necessary. The object of such plates is to convey information to the observer and to record certain findings.

On the following day the patient calls for the bowel examination and subsequently, if necessary.

At the end of an opaque meal examination a patient frequently asks for the "photos." Our practice is to furnish the patient with a sealed report for the medical man, who has referred the case to us, and if thought desirable, plates or prints are also given. To save argument, Dr. Case, of Battle Creek, has a large notice hung in his department which reads:—

Patients are sent here for consultation and diagnosis; and are not entitled to prints nor plates. A written report of the X-ray findings is handed to the attending physician in every case. X-ray plates in hands of patients lead to false interpretations, confusing opinions, multiplicity of advice and bad results.

This notice also appears on the list of instructions handed by Dr. Case to his patients.

The conditions obtaining in Australia being different to those obtaining in America, and fees being on a much lower scale, we cannot possibly make the extravagant examination here, such as they do there. Professor Gregory Cole, of New York, usually has sixty plates taken of each patient after an opaque meal. He seldom sees a patient, and draws all his conclusions from the examination of the plates. This is known as his "serial method." At the Mayo Clinic they are usually satisfied with a dozen plates of each case. Sometimes we take six plates, but when the fluorescent screen is employed frequently, a fewer number of plates suffice. Cole never uses the screen. Carman always does, so does Case.

Team Work.

It is generally admitted that a full history of the case furnished by the medical man in charge will considerably assist the radiographer in the execution of his work. This is known as "team work" in America, and is the system employed generally in connection with all X-ray examinations.

Röntgen Ray Anatomy.

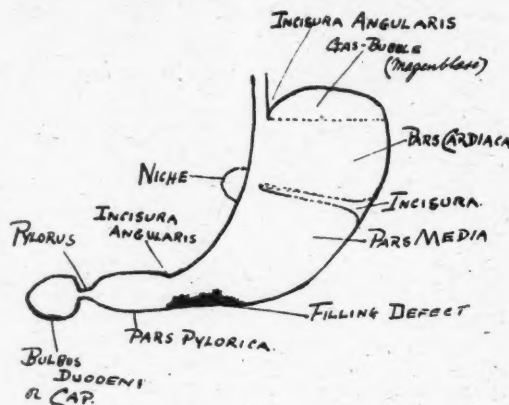
Stomach. Most radiographers divide the stomach into three parts, viz., *pars cardiaca*, *pars media*, and *pars pylorica*.

The *pars cardiaca* comprises the upper third of the stomach, the *pars media* extends from the *pars cardiaca* to the *incisura angularis*. This latter is a slight indentation near the most dependent part of the lesser curvature.

The *pars pylorica* extends from the *incisura angularis* to the pyloric ring.

The *incisura cardiaca* is the angle produced by the junction of the œsophagus with the stomach.

The *pars cardiaca* fits snugly under the left arch of the diaphragm. It contains the gas-bubble (*Magenblase*) within its upper convexity. When the stomach is filled, the base of the gas-bubble is marked by the horizontal plane, at the upper surface of the gastric contents. Near the level of this plane, on the lesser curvature, is the œsophageal opening.



The Duodenum. Somewhat resembling a horse-shoe in its course, the duodenum is divided by some anatomists into three parts and by others into four. Here we shall deal only with the first part, or *pars superior*, or *bulbus duodeni*, commonly called the "cap," after its resemblance to a bishop's cap. Its form is fairly symmetrical and its contour smooth, as it contains no *valvulae conniventes*. Its size varies from a chocolate cream to the size of four chocolate creams, still remaining normal. Normally it is mobile and regular. Abnormally it is fixed and irregular. Such a condition might be caused by cholecystitis with adhesions, tumours of the pancreas or duodenal ulcer. It is well to remember that the proportion of duodenal ulcers to gastric ulcers is four to one, and that nine-tenths of duodenal ulcers appear on the anterior wall.

The *incisura* is an indentation of the gastric wall opposite an ulcer. Its production is reflex, due to irritation, such as may be produced by an ulcer, causing a spastic contraction of the circular muscular fibres in its plane. It generally occurs on the greater curvature, and in the vertical portion of the stomach.

A false *incisura* sometimes occurs. The best way to eliminate this is by giving the patient tincture of belladonna, in full doses, till the full physiological effect is obtained.

Filling defects are observed by unevenness of outline and lack of symmetry.

A niche is the crater of a penetrating ulcer. It shows as a bud-like prominence on the peripheral outline of the stomach.

Briefly let us now pass through the examination of the alimentary tract.

The Œsophagus.

A bolus made of gum acacia and barium sulphate is given to the patient to swallow. By this method the whole of the œsophagus is outlined, and irregu-

larities are clearly seen. The thin coating of barium persists for some time, thus enabling plates to be made. Diverticula and new growths are generally well visualized.

The Stomach.

The following tables are copied from similar ones hung in the X-ray department of the Mayo Clinic. Such tables might with advantage be copied and hung in the X-ray departments of various hospitals.

Röntgen Signs of a Normal Stomach.

Motility.—Complete clearance of the barium carbo-hydrate meal within six hours.

General Form.—Tubular rather than bulbous, usually fish-hook, occasionally steer-horn, in robust persons of broad habitus sometimes intermediate between fish-hook and steer-horn.

Tonus.—Orthotonic; embracing its contents so as to maintain a funnel form even with a moderate amount of ingesta.

Size.—Well filled, but not obviously over-distended by 600 to 720 c.cm. of ingesta.

Contour.—Sharply outlined and unbroken save by peristaltic waves, the *incisura angularis* (lower angle of lesser curvature) and the *incisura cardiaca*; slight depression on greater curvature at upper part of lesser curvature, just near insertion of oesophagus.

Position.—Lower border may be considerably above or considerably below umbilicus.

Mobility.—Mobile to palpation.

Flexibility.—Contour easily indented by narrow palpation, i.e., with a single finger or the edge of the hand.

Peristalsis.—Neither excessive nor absent. Usually one wave; sometimes two waves running.

Röntgen Signs of Gastric Ulcer.

Direct and Pathognomonic.—The niche, the barium filled crater of a penetrating ulcer. The accessory pocket or so-called diverticulum, the cavity of a perforating ulcer.

Indirect.—The *incisura*, indentation in the gastric outline produced by a reflex spastic contraction of the circular muscular fibres in the plane of an ulcer.

Hour-Glass.—Stomach usually of the "B" type, with a short canal near the lesser curvature joining the two loculi. Unless accompanied by a niche or pocket, or unless persisting after the administration of an antispasmodic, neither the *incisura* nor hour-glass is necessarily significant of ulcer.

Auxiliary.—Local irregularity of gastric contour, indicative of a lesion, but not characteristic of ulcer; residue from the six-hour meal; localized tender point on the stomach; lessened mobility of the stomach, fixation by adhesions from perforating ulcer.

Antiperistalsis.—Reverse peristalsis occurring sometimes in obstructive ulcer at the pylorus.

Gastric Hypotonus.—Gastropspasm, more often seen in *pars pylorica*, with ulcer in this position; displacement of stomach.

Röntgen Signs of Gastric Cancer.

The Filling Defect.—A defect in the barium shadow at the site of the tumour.

Disturbance of Motility.—(a) Gaping pylorus and early clearance of the stomach in non-obstructive cases. (b) Delayed clearance of the stomach and retention from the six-hour meal, in obstructive cases.

Disturbance of Peristalsis.—Feeble peristaltic action—absence of peristalsis from involved areas—irregular peristalsis. Vigorous peristalsis, usually affecting the greater curvature chiefly in obstructive cases.

Hour-Glass Stomach.—Usually with a long, centrally-placed irregular canal joining the two loculi.

Lessened Flexibility.—Stiffening by infiltration.

Lessened Mobility.—Fixation to adjacent organs.

Small Size of Stomach.—

Displacement of Stomach.—

Röntgen Signs of Duodenal Ulcer.

Direct.—Deformity of the bulbous duodeni. Duodenal diverticulum.

Indirect.—Gastric hyperperistalsis. Gastric retention from the six-hour meal. The combination of hyperperistalsis with retention is especially significant of duodenal ulcer with obstruction.

Hypermotility.—Early emptying of the stomach in non-obstructive duodenal ulcers.

Gastric Hypertonus.—In non-obstructing duodenal ulcer.

Gastric Hypotonus.—With antral dilatation, in old obstructive duodenal ulcer.

Gastro Spasm.—Spastic hour-glass transient incisurae, etc. Localized pressure—tender point over the duodenum.

Röntgen Ray Findings.

In 11 cases of gastro-jegunal ulcer.	
Röntgen Ray Findings.	No. of Times Found.
Deformity about stoma	8
Exaggerated peristalsis	6
Large stomach	5
Gastro-enterostomy not freely patent ..	5
Retention from six-hour meal	3
Lessened mobility of stomach	2
Dilatation of duodenum	1
Spasticity of stomach	1
Irregularity of jejunum	5

The Intestines

These are examined either in the usual way following the opaque meal to the rectum or, if desirable, a clyisma is given consisting of barium in suspension. Sometimes both methods are employed.

Before a clyisma is given, the bowels must be well evacuated with a vegetable laxative, and, if possible, also by means of an enema.

Various intestinal lesions may be discovered, such as cancer of the colon, diverticulitis, tuberculosis of colon, chronic colitis, chronic intestinal stasis and chronic appendicitis.

Fallacies and Mistakes.

It can easily be imagined how difficult it is in some cases to form a correct conclusion from the data obtained. Needless to say, fallacies sometimes occur and some mistakes are made, and you will readily realize how this may happen. We feel sure, however, that quite 80% of our conclusions are accurate.

Sometimes a stomach may appear to be deformed, or a portion of intestines may appear to be constricted. This result may be due to peritoneal bands, and may be interpreted as new growth. Often a stomach may appear to be hour-glass when examined radiographically, and when the patient is on the operating table, under deep anaesthesia, this condition may disappear. Often, too, all the signs of gastric or duodenal ulcer may be present, and the surgeon may fail to find such a condition on operation.

Pyloric Spasm.

Pyloric spasm, causing a retention beyond the six-hour limit, may be produced reflexly through a lesion in the gall-bladder or the appendix, apart from an ulcer in or near the pylorus itself. In such cases the spasm may relax when the patient is under deep anaesthesia and the pylorus be patulous.

It might be advantageous then for the surgeon to examine the gall-bladder and the appendix.

It can easily be conceived how easy it may be for a surgeon to overlook a minute ulcer involving the mucosa or even a small scar involving the peritoneum. It is not an uncommon procedure for a

surgeon to glance rapidly at a stomach, push his finger into the pyloric sphincter, and conclude that the condition is normal. The after history of many of these cases would be interesting to follow.

The surgeon must realize that he, too, is liable to form a wrong conclusion in some of these cases, for even post-mortem it is difficult enough to discover certain minute lesions of the alimentary tract. Anyhow, it must be understood that the examination of of the alimentary tract is a very intricate study, and it must be carried out with great care and precision. It is not an examination for an "amateur" radiographer to carry out. It is difficult enough for the expert, and only after many hundreds of such cases have been examined can satisfactory conclusions be drawn and diagnoses made. Interpretation involves not only skill and judgement, but temperament as well.

The personal question is always most important. "What the surgeon most desires," says Mayo, "in his report from the radiographer, is brevity like that of the pathologists' reports regarding diseased tissues. A detailed statement of the various types of cells and tissue-structures sent to a man who is not an expert, fogs his mind and clouds the clinical evidence previously obtained. To stand well with the surgeon, the radiographer should be specific in his conclusions, avoid verbose descriptions of his findings, and where unable to make a diagnosis, frankly report the case as 'indeterminate.'"

Our method, when furnishing a report of a case is as follows:—

Mr. X. has been given an opaque meal.

Findings.
Thorax.—Normal.
Gall Bladder.—Negative.
Alimentary Tract.

- A. *Stomach.*
Position.—Normal.
Peristalsis.—Fair.
Tone.—Fair.
Mobility.—Free.
Incisura.—Negative.
Filling defects.—Marked irregularity near the pyloric end of the stomach.
Evacuation.—After six hours the stomach contained half the meal.
 B. *Duodenum.*—Cap regular and mobile.
 C. *Intestines.*—After twenty-four hours the meal was evenly distributed from caecum to rectum, no kinks nor adhesions being present.
Conclusion.—This patient has a malignant growth near pyloric end of the stomach, causing obstruction.

As a matter of routine the thorax is always examined, and often one is considerably compensated by so doing. If the history suggest it, the gall-bladder is examined by X-rays a couple of times. Sometimes certain remarks cause a little confusion. Time will only permit of two being mentioned:—

Hyper-secretion. An excessive amount of secretion can be discovered by the Röntgen rays. It commonly occurs in an obstructive lesion near the pylorus, and also in gastric and duodenal ulcer, as well as in other conditions. Its value must be estimated in conjunction with other findings.

Duodenal Irritation. Certain findings may point to this diagnosis being made. Such a term includes

adhesions in this area either secondary to gall-bladder trouble or pancreatic disease, or very early duodenal ulceration, or a chronic appendicitis.

Probably no organ in the body is more often the seat of common complaint than the stomach, but as W. J. Mayo says, "so frequently are these symptoms reflex, that only one person in ten who complains of gastric trouble as the major symptom, actually has disease of the stomach."

Carman says: "At its present stage the accuracy of the Röntgen diagnosis of gastric ulcer is greater than is generally appreciated and considerably exceeds that of customary clinical methods."

It is somewhat startling to know that more than 30% of all cancers in civilized man are in the stomach. In the most recent paper by William Mayo he states:—

Newer and better methods of diagnosis within the past few years have greatly extended operability and made possible radical procedures in an increasing number of patients. The early diagnosis of cancer of the stomach depends on the Röntgen examination.

Carman has shown that cancer of the stomach may be demonstrated in 95% of cases in this way, by the time they give sufficient evidence of their presence to call the patient's attention to the fact that something is wrong. Every person in whom there is suspicion of cancer of the stomach, should be promptly subjected to examination by the Röntgen ray. All persons with an anæmia which cannot be otherwise explained, should be subjected to such an examination.

Cancer of the body of the stomach and cancer of the caecum and ascending colon may produce striking anæmias early, before there are local symptoms.

When furnishing a report on a case of cancer of the stomach, the radiographer should be able to state whether there is obstruction or not, and whether the case is suitable for an anastomosis, judging by the extent of the involvement of the organ. It often makes one shudder to think of the numbers of patients with gastro-intestinal disorders.

Ochsner issues a warning when he says:—

We must avoid irritation. We must teach our patients that they must not eat unclean food, unless it has been cooked. We must teach our patients that they must not irritate their tissues, and that exposure to heat produces a dangerous form of irritation. We must have them understand it; we must make the public in general understand this.

But we should at the same time insist upon having clean food to put into the alimentary canal. I am convinced that when this is done, we will have an enormous decrease in the amount of cancer.

Daily a number of gastro-intestinal cases pass through our hands for examination. The usual procedure adopted by Dr. Sear and myself is to examine the cases in rotation as far as possible. Often we check each other's observations, and occasionally an opinion is altered before the final result is arrived at.

Before concluding, it must be clearly understood that the Röntgen ray examination of the alimentary tract is not infallible. Carried out in expert hands, the data obtained are most reliable, and the majority of conclusions and diagnoses are correct.

Naturally some mistakes are made. For any mistakes I, personally, take all responsibility; but for the successful cases, I wish to give full credit to Dr. Sear, and also to Dr. Dorothy Voss, who has proved such an excellent resident radiographer at the Royal Prince Alfred Hospital.

References.

- Carmen and Miller (Mayo Clinic), 1917—"The Röntgen Rays in Diseases of the Alimentary Tract."
 Charles H. Mayo (Rochester), 1916—"An Appreciation of the Röntgen Ray and a Warning as to Its Use in Surgical Diagnosis."
 E. H. Beekman (Mayo Clinic), 1916—"The Differential Diagnosis of Lesions of the Stomach and Duodenum."
 Russel D. Carman (Rochester), 1916—"Spasm of the Stomach and Duodenum from a Röntgenologic Point of View."
 L. Herschel Harris, Australasian Medical Congress, Auckland, New Zealand, 1914, Section of Dermatology, Radiology and Medical Electricity—Presidential Address.
 A. J. Ochsner, *Surgery, Gynecology and Obstetrics*, April, 1918—"Cancer of the Stomach."
 W. J. Mayo, *Surgery, Gynecology and Obstetrics*, April, 1918—"Cancer of the Stomach."

THE VALUE OF X-RAY IN GASTRO-INTESTINAL DISEASES.¹

By C. Ayres, B.A., M.B., Ch.M.,

Honorary Radiographer, Sydney Hospital, Honorary Radiographer, St. Vincent's Hospital.

For the X-ray study of gastro-intestinal cases to be of value to the physician and surgeon, certain requisites are essential. There must be:—

- (1) Efficient apparatus. The best for the purpose at the present time is the interrupterless transformer to work the Coolidge X-ray tube in conjunction with the "Victor" Coolidge tube control.
- (2) A good technique.
- (3) A physician of good clinical experience, and one who has had special experience in X-ray work.
- (4) A correlation always to be made between the history, the clinical data, the laboratory tests and the X-ray findings.

No radiographer pretends that a diagnosis should be made on the result of the X-ray examination alone. It is one of the methods of examination, and it often proves in many cases a real help in completing the chain of evidence on which a diagnosis can satisfactorily be made.

No one can gainsay the fact that the bismuth or barium X-ray examination of the gastro-intestinal tract affords assistance of great practical value to the surgeon and physician. Mistakes have been made, and will continue to be made, because the diagnosis is often a matter of inference only. Yet radiographers believe that in the great majority of cases, just as much value is got from an X-ray examination, as the surgeon obtains by his exploratory operation.

To-night I know that some of our friends have come prepared to tell us how often the X-ray diagnosis was wrong. In fact, a medical man has assured me that he believes that, no matter which radiographer did the work, in twelve consecutive cases his diagnosis would be wrong as often as it was right.

Another surgeon used to say that the radiographer often writes a short poem as a report, and places several arrows on the plate to indicate the lesion, and yet at operation no lesion is found, but he forgot to mention that perhaps occasionally the surgeon himself fails to find the lesion, even though it is close

to his hand as reported. Although the first bismuth meal was given by Rieder of Munich in 1904, the authorities are not yet quite agreed as to the conclusions to be drawn from the X-ray examination, nor have they yet fixed upon a standard opaque meal to be used by all on every occasion.

At first bismuth subnitrate was used, but several patients were poisoned owing to impurities in it, and bismuth carbonate, or oxychloride, were substituted for it. Nowadays pure barium sulphate is almost exclusively used, for several reasons. It is cheaper, passes more rapidly through the tract, throws a more homogeneous shadow, and is more palatable to take than bismuth. Sixty grammes or more of pure barium sulphate are mixed thoroughly with a cupful of porridge or bread and milk, with sugar and cream added to make it as palatable as possible. In America, buttermilk is largely used.

The examination should first be made by means of the fluorescent screen with the patient in the erect position, then in the supine, and also whilst lying on his right side. Just as in case of a suspected urinary calculus, it is now the rule to examine the whole of the urinary tract, so in a suspected gastro-intestinal tract lesion, the whole of the tract should be examined from the œsophagus to the rectum.

Although you may be wearied by repetition, owing to other papers being read before mine, I would like to state rapidly what I believe are now the fairly well established facts deduced from this bismuth or barium X-ray examination of the gastro-intestinal tract, and I will begin with the œsophagus.

The Œsophagus.

Now in the case of the œsophagus, there can be no doubt of the great value obtained from an X-ray examination.

The patient is placed erect in the right anterior oblique position, *i.e.*, with the tube placed behind the patient over the left side of his back, and the screen in front over the right side of his chest. In this position the shadow of the vertebral column is thrown to the right of the middle line, and the shadow of the aorta to the left. Between these two shadows is a clear area down which the œsophagus runs. When the liquid containing bismuth is swallowed by the patient, it is seen on the screen to be running down this clear area, like molten lead, into the stomach.

The œsophagus can also be examined, though not so well, in the reverse position, *viz.*, the left posterior oblique.

Foreign bodies can easily be seen, and also œsophageal diverticula, which become filled by bismuth, and can thus be located. Displacements, too, can be made out, such as sometimes result from diseased pleura or lung, from tumour or aneurysmal pressure, and particularly any stenosis caused by any of the above conditions, but especially by malignant growth or by cardiospasm. Cardiospasm is due to spasm of the rudimentary sphincter at the lower end of the œsophagus. This sphincter is formed by circular muscular fibres at that point. Malignant stricture, due to tumour growth, may occur at the commencement, the middle, or lower end of the œsophagus. In the latter position it can usually be distinguished from cardiospasm, because it is always seen at the

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on May 31, 1918.

X-ray examination, its walls are irregular, and the growth itself sometimes throws a shadow, and there is no great dilatation above the stenosis, because the patient does not survive long after the stenosis becomes apparent; whereas, in cardiospasm there is much dilatation, the walls are smooth and regular, and the stenosis relaxes at times, allowing of the passage of the meal.

Any stenosis can also be detected by means of the gelatine capsule containing bismuth.

The Stomach.

Before going on to the lesions of the stomach, let me make a few preliminary remarks in reference to the stomach itself.

Although the stomach varies in shape in different individuals, radiographers recognize two main forms

(1) The J, syphon, or fish hook form, which occurs in 80% of adults. This is observed in most women, and many men in whom the chest is long and narrow, and the costal arch narrow. Ulcer is more common in this form than in (2) the cow horn or steer horn. This is seen frequently in men but only occasionally in women. The chest is short and broad, and the costal arch wide. Carcinoma is more common in this form than in the fish hook form.

In the empty stomach the walls are in contact, and are flattened from before backwards, except at the fundus, which is filled with gas. This portion is called the *Magenblase* or gastric air bubble, and is seen on the screen as a clear light area, just below the left dome of the diaphragm.

When food enters the stomach, if the tone is normal, it does not sink to the bottom, but gradually separates the walls laterally, and the upper border of the food remains practically at the same level, just below the oesophageal opening, whilst the walls widen to accommodate the entry of more food.

The tone of the stomach is the vital contraction, which maintains it in a tubular form, no matter how much food enters.

According to the degree of tone, stomachs are classified as:—(1) orthotonic normal tone; (2) hypertonic overtone, in which the stomach is placed well up in the abdomen beneath the left dome of the diaphragm, and its lower border is at or above the umbilicus; (3) hypotonic under-tone; and (4) atonic in which the food sinks down to the lower end of the stomach.

Occasionally one sees in print other terms applied to the stomach, such as, (1) the water trap stomach, which is an exaggerated fish hook form, in which the pyloric arm is long, (2) the snail shaped stomach, a term applied by Handek to a stomach in extreme flexion, in which the contracting scar of an ulcer on the lesser curvature draws the pylorus up and to the left, (3) the leather bottle stomach, in which the walls are extensively infiltrated with cancer.

The names applied to various parts of the stomach are as follows, and it is as well for me to mention them, as different authors seem to me to use different terms in speaking of them.

(1) The *Magenblase* or gastric air bubble, at the upper end of the stomach, above the oesophageal opening, where the *incisura cardiaca* marks the acute angle of opening of the oesophagus into the stomach.

(2) The *pars cardiaca*, the portion of the stomach just below this.

(3) The *pars media*, the next portion.

(4) The pyloric vestibule, sinus, or antrum, which is marked off from the rest of the stomach by the normal *incisura angularis* on the lesser curvature.

(5) The pyloric canal, which is marked off from the vestibule by the *sulcus intermedius* on the greater curvature.

(6) The pylorus, which is seen as a clear disc.

Position of Stomach.—It is mostly to the left of the mid-line; its lower border is generally below the umbilicus, and the pylorus is situated 2.5 cm. above and 2.5 cm. to the left of the middle. The barium meal, provided the tone of the organ is good, does not cause the lower border of the stomach to sink down to any appreciable extent.

Mobility.—The normal stomach can be freely moved by the protected palpating hand under the screen, hence diminished mobility indicates adhesions from the presence of a penetrating ulcer, or from cancer growth, or from adhesions about the gall bladder or duodenum.

Motility.—The motility of the stomach is shown by the time the stomach takes to empty itself. Barium normally passes out nearly twice as quickly as bismuth, hence the stomach is generally empty in from one and a half to two hours. If there is a residue after six hours, there is generally some organic cause for it.

Peristalsis.—The strength of the peristalsis usually depends on the amount of tonus. Whereas peristalsis depends on the integrity of the circular muscular fibres only, tonus depends on the integrity of both circular and longitudinal muscular fibres. One may be present without the other.

Peristaltic waves begin just a little above the middle of the greater curvature, and travel slowly towards the pylorus, effacing the pyloric vestibule by concentric contraction, as it goes, and ending in the pyloric ring, the vestibule then being immediately reformed.

Peristalsis is generally normal, or diminished in gastric ulcer, and exaggerated in duodenal ulcer, and in cases of pyloric obstruction.

Gastric Ulcer.

The X-ray findings in gastric ulcer are as follows:

(1) The niche and *diverticulum*, or accessory pocket as some term it. The niche is a bud-like projection seen on the lesser curvature or posterior wall, and is the bismuth-filled crater of a penetrating ulcer. It is not present in all ulcers, especially the superficial ones, but when seen is direct and positive evidence of the presence of an ulcer. It moves with the stomach on palpation.

The *diverticulum* or accessory pocket is seen in the case of an ulcer penetrating another viscus, especially the liver in front or the pancreas behind. In the case of the liver it moves with respiration, but not when the perforation is into the pancreas. The *diverticulum*, like the niche, is filled with bismuth, and throws a shadow on the screen or plate.

(2) An indentation or *incisura*, as it is technically called, on the greater curvature, opposite the niche on the lesser curvature. It is caused by spasmodic

contraction of circular muscular fibres due to irritation of an ulcer. It may also be caused by the scar of a healed ulcer, and may be so marked as to produce hour-glass stomach. It must be distinguished from the normal *incisura*, and is distinguished from the indentation of a commencing peristaltic wave by being permanent and stationary; it does not move, like the peristaltic wave does, towards the pylorus. It is always present after vigorous massage, and the administration of belladonna, for a day or two.

(3) A residue in the stomach, six hours after the meal is taken, *i.e.*, delayed emptying time of stomach. An ulcer always impairs gastric motility and causes pylorospasm; hence the delay in the passage of food from the stomach. This delay may also be caused by a scar, causing more or less obstruction. This six hour residue may occur also in duodenal ulcer, carcinoma causing obstruction, and gall bladder adhesions.

(4) Acute fish hook stomach, with dilated lower pole.

(5) Displacement of the pylorus to the left.

(6) Hyper-secretion, especially in pyloric ulcer.

(7) Hypotonus.

(8) Diminished peristalsis.

(9) A sharply localized tender spot over the lesser curvature.

(10) Diminished mobility of the stomach.

Now, if all this evidence were present in every case, diagnosis of gastric ulcer would be easy, but as the niche and *diverticulum* may be absent, and the *incisura* may be slight and be due to some other cause, and the six hour residue may be found in other conditions I have mentioned, it will be readily understood that it may be extremely difficult to make a diagnosis on the X-ray examination alone, hence the necessity for the X-ray findings to be correlated, as before stated, with the anamnesis, the clinical data, and the laboratory tests. If this is done, I think that the radiographer can confidently give a correct diagnosis in the majority of gastric ulcer cases, which come before him.

Cancer of Stomach.

X-rays are very valuable in cancer of the stomach, as 95% of cases are detected by their means.

The chief radiographic sign is a filling defect in the shadow of the stomach. The tumour projects into the lumen of the stomach, causing an irregular contour. This filling defect is seen at each examination, and may occur in any portion.

Cancer of the pylorus, in its early stage, may occur without causing any alteration in shape, but as it grows, it causes a cone-shaped alteration, which is quite characteristic.

There may be a six hour residue, owing to the cancer causing obstruction of the pylorus, or there may be early and very rapid emptying of the stomach, owing to a gaping of the pylorus produced by infiltration of the walls with the cancer, or to an absence of reflex closing of the pylorus, the result of achylia.

The size of the stomach is diminished, and its mobility is lessened. There is usually hypotonus, and diminished or absent peristalsis. If peristalsis is present, a peculiarity is that it skips the cancerous area, and resumes its course again in the normal portion beyond the cancer. Hour-glass stomach may result.

There is usually an advanced position of the head of the barium column in a given time, as compared with normal.

As regards operation, it is held that it is possible if the stomach retains approximately its fish hook form, and peristalsis is present, but contra-indicated where the stomach has changed its fish hook form to the cow horn form, and peristalsis is absent.

Another condition that can be made out with X-rays is hour-glass stomach, in which it is divided into two segments, with a narrow communicating channel. There are three forms:—

(1) *Simple spasmodic hour-glass contraction*.—This may be overcome by massage of the abdomen and internal administration of belladonna.

(2) *Simple organic hour-glass contraction*.—This form is due to the contraction of the scar of an ulcer.

In both these forms the segments are more or less symmetrical, and the outlines regular.

(3) *Malignant organic hour-glass contraction*.—Here the segments are asymmetrical, the outlines are irregular, and the connecting channel is usually longer.

Lastly, in connexion with stomach cases, X-rays are of value in the examination of the stomach after the operation of gastro-enterostomy, for the purpose of observing how the new opening is functioning. It seems to me that for a time the food passes by the new opening, because, although there may not be organic obstruction at the pylorus, the ulcer sets up pylorospasm. Later, when the ulcer gets rest, and more or less heals up, the pylorus opens more freely, and the food again tends to pass by the natural way through the pylorus, rather than by the new opening, which tends to close again.

The Intestines.

I now come to the small intestine.

The only portion of the duodenum which is usually fairly well seen on the screen, or in the skiagram, after the barium meal, is the first portion, which is called the *bulbus duodeni*, or duodenal cap. It is seen as a triangle or cone, with base down, and situated directly over the pylorus. The reason why the duodenum is usually not well seen, is because the meal passes so rapidly along this portion of the intestine, that it escapes observation.

The duodenum receives acid chyme from the stomach, and this is given as the reason why ulcer is most commonly met with in this portion of the small intestine.

Duodenal Ulcer.

The niche and *diverticulum* mentioned as occurring in perforated gastric ulcer, may also occur in perforating duodenal ulcer, but are rare.

The most noticeable feature of duodenal ulcer to my mind is hyper-peristalsis, occurring in a hypertonic stomach, *i.e.*, a stomach situated high up in the abdomen, in which the pylorus and the lower border of the stomach are above the umbilicus. The exaggerated peristaltic waves are seen in both curvatures of stomach, whereas, normally they occur chiefly on the great curvature. Yet hyper-peristalsis is not limited to duodenal ulcer; it may occur normally in the steer horn stomach, and exceptionally in gall-bladder disease or appendicitis.

Another peculiarity is rapid early emptying of the

stomach contents, due to inefficient contraction of the pylorus. This is associated in a large proportion of cases with a six hour residue, due either to reflex pylorospasm, which occurs when the barium meal reaches the lower end of the ileum, or to organic obstruction in the duodenum produced by the ulcer itself. But this rapid emptying may occur also in gall-bladder disease, appendicitis, and infiltrating cancer of the pylorus.

Another indication of duodenal ulcer, if it can be made out, is deformity of the duodenal cap. It is so difficult to detect, however, that American authorities advise, in doubtful cases, serial radiography of the duodenal cap, *i.e.*, a large number of plates are taken, and if one of them presents a normal duodenal cap, duodenal ulcer is ruled out of the diagnosis. Deformity of the duodenal cap may also result from adhesions, as in cholecystitis.

Again, instead of the barium passing rapidly through the duodenum, as it normally does, it may remain in it for a much longer period than usual, so that the whole of the duodenum may be easily seen as a three quarter circle.

This is said possibly to be due to spasmodic stenosis of the duodeno-jejunal junction. There is, moreover, an irritability of the whole tract, so that instead of the head of barium meal column being in the caecum in a certain time, it will be found to have reached the splenic flexure, or the descending colon.

Lastly, a tender pressure point may sometimes be made out by palpation over the duodenal shadow.

When it is remembered that the symptoms of gastric or duodenal ulcer may be simulated by those of a cholecystitis and gall-stone, and even chronic appendicitis, it will readily be admitted that the X-ray evidence will often be of inestimable value in clinching the diagnosis.

The next part of the small intestine where X-rays are of value is in the terminal portion of the ileum. Here is found Lane's kink, which is caused by a fibrous band adherent to the ileum 5 cm. from the ileo-caecal valve. This band, according to Lane, is non-inflammatory and formed by nature to support a caecum, which is tending to sink down, in consequence of stasis of its contents; others say that it is caused by a local peritonitis, brought about by stasis of its contents.

Supposing Lane's kink to be present, and that it is causing ileal stasis, we find on X-ray examination, large dilated coils of ileum separated from the caecum by a narrowed portion of ileum, the kink being about 5 cm. from the ileo-caecal junction. The barium meal remains in the ileum for a day or two or more, instead of passing on into the caecum within ten hours, as it usually does. But ileal stasis may also result from incompetence of the ileo-caecal valve. This can be detected by mean of a barium enema, watched on the screen, as it passes along the large intestine into the caecum. There is a reflux from the caecum into the ileum. This, of course, does not normally occur.

Ileal stasis may also be caused by malignant or tubercular ulceration of the caecum, involving the ileo-caecal valve. This also may be detected in the same way.

The Large Intestine.

The caecum is generally seen to lie in the right iliac fossa, the terminal portion of the ileum ascending and opening into it at an acute angle.

The ascending colon passes up from the caecum to a point a little above the crest of the ileum to the region of hilum of the right kidney. Here it passes to the left, forming the hepatic flexure, and continues as the transverse colon up and to the left, crossing the lower border of the stomach. On the left side it reaches much higher than on the right, and forms the splenic flexure at the junction of the intersection of the mid-axillary line, with the upper border of the 9th rib, and then on as the descending colon, forms the sigmoid flexure at the brim of the pelvis, and so on to the rectum and anus.

Carcinoma may occur in any part of the large intestine. X-rays show a characteristic filling defect with stenosis on one side of it, and dilatation on the other side.

The appendix can sometimes be seen filled with barium, and it can be palpated by the hand under the screen, in order to detect adhesions. If the appendix empties by the time the caecum empties, its filling is not held to be of much consequence, but there is danger if the barium remains for days, especially if there is tenderness over it on palpation.

In connexion with the ascending colon, we can sometimes detect Jackson's membrane, a fibrous band running from the side of abdomen to the ascending colon. This may, or may not, delay the passage of barium meal along the large intestine. If so, one sees a dilated caecum and ascending colon, and the portion of intestine beyond is narrowed in calibre. The palpating hand cannot readily move the ascending colon, and there is tenderness on pressure over it.

The transverse colon can apparently sink down considerably, without causing any serious trouble, especially in women.

Lastly, I will mention the ease with which the opaque enema can be watched on the screen as it passes along from the rectum to the caecum, the tube being under the table, and screen on the abdomen.

The enema may consist of any starch, or mucilaginous material, about 1.2 or 1.4 litres, containing 120 grm. barium. Case, of Chicago, gives the following formula: to 10 grm. of acacia add 3 c.cm of alcohol; shake, then add 600 c.cm of warm water; shake, and add 120 grm. of barium.

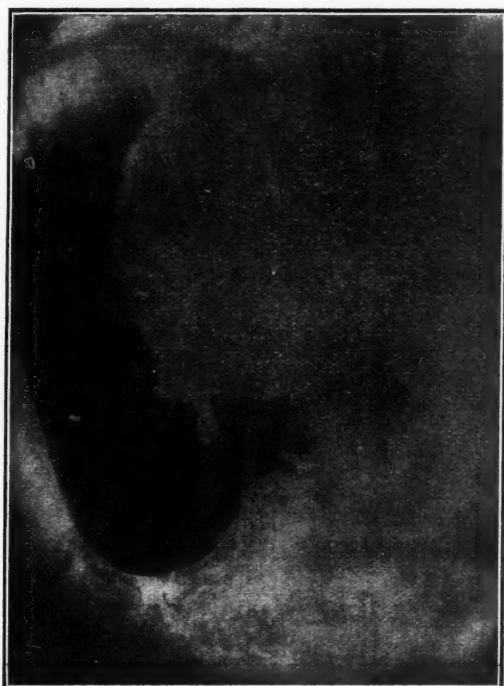
Carman's formula is: to 480 c.cm of mucilage of acacia add 3 cans of condensed milk and 120 grm. of barium sulphate. The enema material is placed in a container about 90 cm. above the patient, who lies flat on his back.

Normally it takes 1.2 litres of fluid about five minutes to reach the caecum, and any delay or obstruction can be readily seen.

I conclude with a final appeal to surgeons and physicians to send with the patient the history, clinical data, and laboratory test.

If this is done, I think I can confidently say that in the great majority of cases all will be well.

PLATES TO ILLUSTRATE DR. J. G. EDWARDS' ARTICLE.



Case I.



Case II.



Case III.

PLATES TO ILLUSTRATE DR. J. G. EDWARDS' ARTICLE.



Case IV. (l.)



Case IV. (ll. a).



Case IV. (ll. b).



Case V.

Reports of Cases.

SOME INTERESTING CASES.¹

By J. G. Edwards, M.B., Ch.M.,

Honorary Assistant Radiographer, Sydney Hospital; Honorary Radiographer, St. Vincent's Hospital, Sydney.

Case 1. The man was complaining of a tumour in the epigastrium. There was a history of gradually progressive dyspepsia, with some discomfort before and after meals; no pain, occasional vomiting, no hæmatemesis, loss of seven kilograms weight in two years.

He had been told by several medical men that he was suffering from inoperable malignant disease. A barium meal was administered, and the examination showed a large calcified hydatid, causing pressure on the stomach.

Case 2. The skiagram shows an inoperable malignant growth of the cardiac portion of the stomach.

The large portion of infiltrated stomach wall is shown in the plate, and it will be seen that the condition is inoperable from its position and from the large area of stomach wall involved.

Case 3. The patient is a male, with a long history of bilious attacks, with a nocturnal onset.

The barium meal showed a duodenal stenosis and a long appendix with a bulbous end and a kink near its caecal attachment. The appendix is clearly seen in the plate.

Case 4. A male, with typical symptoms of duodenal ulcer. Marked signs of duodenal irritation were seen on the screen, and a peculiar persistent shadow was present in the duodenum. A second meal was given in order to investigate this shadow, and it was found to have disappeared, and was later discovered in the ascending colon, when it was seen to be a round-worm, which had become impregnated with barium, and carried from his normal habitat by the bulk of the meal.

Case 5. The patient was complaining of pain in the left iliac fossa, similar to the ordinary right-sided appendicitis. The barium meal showed a left-sided caecum and ascending colon, and operation confirmed this finding. An acutely inflamed appendix was removed by Dr. Bullock.

This case is similar to a case reported by Dr. Corlette, in *The Medical Journal of Australia* (June 30, 1917), and a peculiar fact about the case was that it occurred in a Greek who came from the same island as Dr. Corlette's patient.

Reviews.

HOSPITALS IN SHIPS.

Those who have travelled on the coast, and overseas, know how inefficient and badly equipped is the hospital accommodation in ships for all diseases, and especially those of an infectious character. Dr. Park has drawn attention to this fact in his book on "Hospital Accommodation on Ships," published by the Quarantine Service of the Commonwealth,² and in doing so he has done great service to the community. He has pointed out, by quarantine statistics, how necessary it is that all passenger vessels on the coast and all overseas vessels should be supplied with adequate accommodation for infectious diseases for both passengers and crews. His investigations have been based on ships visiting Australian ports, but the conclusion he has arrived at can be applied equally to almost any vessel afloat. Some few of our big overseas passenger ships have the required accommodation, but these are unfortunately very few; in most vessels it is quite inadequate and in many there is none at all.

He has laid down an ideal for a hospital for males and one for females, in passenger liners, each with separate lavatories and accommodation for an attendant. In his

¹ Read at a meeting of the New South Wales Branch of the British Medical Association, on May 31, 1918.

² Service Publication No. 15: *Report on Hospital Accommodation on Ships*, by C. L. Park, M.B., Ch.B., D.P.H., Chief Quarantine Officer (General), Tasmania; 1917. Royal 8vo., pp. 79, with illustrations. Albert J. Mullett, Government Printer, Melbourne.

criticism, he has laid some stress on the difficulties of manipulating an ordinary ambulance stretcher along the narrow passages and awkward corners of a ship; but this is not a great point, for as has been proved on our military hospital ships, the difficulty can be overcome by using a soft stretcher without poles, to which four loop handles are sewn on each side. Four bearers can manage this stretcher quite easily without discomfort to the patient.

Many plans are given of the various types of the accommodation, accompanied, in some cases, by photographs; and the subject of hospitals for the crews is dealt with as fully as that of hospitals for the passengers.

The reforms advocated in this book are so necessary and so self-evident that it is to be hoped the recommendations will not be pigeon-holed, but will be embodied in the next amendment to the Navigation Act.

THE SURGERY OF DEEP VESSELS.

The tendency of war surgery towards large incisions and frank exposure is well illustrated in *Découverte des Vaisseaux profonds*, by J. Foille and J. Delmas.³ The authors do not presume to modify the classical incisions for the ligation of blood vessels in healthy tissues and in ordinary civil surgery, but they maintain that the conditions of war surgery demand new methods of attacking certain problems. A limb infiltrated with blood offers great difficulties to the surgeon who uses the old classical incisions. The particular branch from which the hæmorrhage is coming is often not known, and forceps are likely to be put on haphazardly, with the result that nerves are at times lacerated and even tied. The authors claim that their methods make for a more precise and accurate operation, and if the incisions are large, they are carefully planned with a proper consideration of the value of the various anatomical structures.

The exposure of the various vascular bundles of the limbs is an easy matter. For example, an incision from the middle of the ham to below the prominence made by the muscular bellies of the calf, with retraction of the calf muscles and incision of soleus close to the tibia, will expose a vascular crossways consisting of part of the popliteal and its branches, and the origins of the tibial and tibio-peroneal trunks. And all this is done without cutting a nerve or artery of any importance. The exposure of branches from the aortic arch is a matter of much more serious consideration. The immediate mortality from wounds in this region is very high, but patients at times arrive at hospital with a diffuse arterial hæmatoma infiltrating the superior mediastinum. A trap door incision is made in such a case which allows of half of the manubrium and the inner half of the clavicle to be swung out on a hinge of the first cartilage; the latter is cut as far out as possible.

The procedures in this book are described with clearness and illustrated with drawings which are quite excellent. They supply an argument for the more careful investigation and treatment of vascular lesions which will be welcomed by surgeons who had had to muddle through with insufficient exposure.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending June 22, 1918:—

	Metropolitan District.		Hunter River District.		Rest of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Enteric Fever ..	6	0	0	0	2	1	8	1
Scarlatina ..	18	0	0	0	9	0	27	0
Diphtheria ..	49	1	7	0	45	4	101	5
*Pul. Tuberculosis	31	8	1	1	0	0	32	9
C'bro-Spl. Menin.	0	0	2	0	0	0	2	0
Malaria ..	1	0	0	0	0	0	1	0

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

³ *Découverte des Vaisseaux profonds par des Voies d'accès larges*, par J. Foille et J. Delmas; Préface par Pierre Duval; 1917. Paris: Masson et Cie. Demy 8vo., pp. 119. Price, 5 francs.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending June 23, 1918:—

	Metro- politan. Cs. Dths.		Rest of State. Cs. Dths.		Total Cs. Dths.
Enteric Fever	2	0	3	0	5 0
Scarlatina	43	0	29	0	72 0
Diphtheria	97	1	56	1	153 2
Pulmonary Tuberculosis	15	15	6	4	21 19
C'bro-Spl. Meningitis..	1	—	0	—	1 —
Pollomyelitis	0	—	1	—	1 —

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending June 22, 1918:—

Diseases.	No. of Cases.
Enteric Fever.. ..	9
Scarlatina	9
Diphtheria	77
Pulmonary Tuberculosis	3
Cerebro-Spinal Meningitis	1
Erysipelas	5
Puerperal Fever	1
Malaria	1

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the week ending June 15, 1918:—

	Adelaide. Cs. Dths.		Rest of State. Cs. Dths.		Total. Cs. Dths.
Enteric Fever	0	0	5	0	5 0
Scarlatina	0	0	16	0	16 0
Diphtheria	1	2	45	0	46 2
Pulmonary Tuberculosis	1	3	8	4	9 7
C'bro-Spl. Meningitis..	0	1	0	0	0 1
Erysipelas	0	0	4	0	4 0
Morbili	1	0	0	0	1 0
Pertussis	0	0	3	0	3 0

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the fortnight ending June 15, 1918:—

Diseases.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Enteric Fever	4	0	0	4
Scarlatina	1	2	2	5
Diphtheria	1	11	15	27
Pulmonary Tuberculosis	3	1	5	9
Puerperal Fever	0	1	0	1

NEW ZEALAND.

The following notifications have been received by the Chief Health Officer, Department of Public Health, Hospitals and Charitable Aid, New Zealand, for the four weeks ending May 27, 1918:—

Diseases.	No. of Cases.
Scarlatina	196
Diphtheria	666
Enteric Fever	45
Pulmonary Tuberculosis	90
Puerperal Fever	3
Cerebro-spinal Meningitis	2
Erysipelas	5
Tetanus	1
Hydatids	2
Ophthalmia Neonatorum	1

SCHOOLS AND SCHOOL CHILDREN IN QUEENSLAND.

The annual report of the Secretary for Public Instruction in Queensland for the year 1916 was presented to His Ex-

cellency the Governor, in October of 1917, and was printed and issued for public information in November. The volume comprises 196 pages of foolscap size, and is clothed in a cardboard cover. The cost of production is not given. Notwithstanding the fact that 53 pages are devoted to the publication of examination papers and many pages to matters of minor concern to the community, only one page and three-quarters are reserved to the most important subject connected with children, namely, health and hygiene. Not one word is devoted to the recognition and care of mentally defective children, and the large problems of school hygiene are also neglected.

The Secretary recalls the difficulties under which the Department was working in 1916. The Chief Medical Inspector, Dr. Eleanor Bourne, and the Assistant Medical Inspector, Dr. Elizabeth Sweet, were both absent on military duty. Dr. Rodger, the Ophthalmic Inspector, to the great regret of the Department and of his colleagues, had been killed on active service in France. He gives the late Dr. Rodger the credit of having reduced the frequency of ophthalmic affections in children as a result of his skilful organization and enthusiastic personal attention. He states that the influence of Dr. Rodger will have a permanent effect on the future policy of the Department in combating ophthalmic diseases among school children.

It is a matter of great satisfaction to the medical profession that the responsible authorities have determined not to fill the vacancies caused by the absence of medical officers on war service. Temporary arrangements were made by the appointment of thirteen part-time medical inspectors to pay weekly visits to the schools in their respective districts, to examine the children and record all defects discovered, and to recommend treatment when deemed necessary. The medical inspectors have also the duty of advising the Department in regard to the exclusion of pupils from the schools or the closure of the schools, and also in other matters involving school hygiene.

The co-operation of the Commissioner of Health has been sought concerning the control of outbreaks of epidemic diseases. Unfortunately no information is given either of the frequency of physical defects discovered at the inspections or of the incidence of infective diseases among the children.

The intention of the Department to appoint a fourth school nurse has not been acted upon in deference to the wishes of the Defence authorities. The Secretary points out that the following up system has been continued and expanded during the year. As soon as a child is found to be physically defective, a notice is sent to the parents informing them of the nature of the defect and recommending them to consult a medical practitioner. The head teacher makes enquiries six weeks later as to whether any treatment has been obtained and, as a result of these enquiries, a report is drawn up setting out the list of defects and the remedial steps that have been taken. This report is forwarded to the Department. A second letter is written to the parents of those children who have not received medical attention. The next step taken to ensure treatment is a visit from the school nurse, if one is available. In those cases in which the treatment is not sought on account of the inability of the parents to pay for it, the nurse makes arrangements for the treatment to be carried out at a hospital.

In a number of centres where trachoma and other ophthalmic affections are prevalent, the services of a medical practitioner at the local hospital are engaged for the purpose of examining children with symptoms of eye trouble and of applying treatment in all cases requiring it. The medical practitioners are paid from £50 to £75 per annum for this work. Prophylactic measures are also employed. The Secretary does not indicate the number of medical practitioners engaged in this work, the number of children affected or the relative frequency of trachoma.

Seven short paragraphs are devoted to the important subject of dental inspection. These seven paragraphs, however, occupy one half of a page out of the one and three-quarter pages accorded to mental and dental inspection. The Chief Dental Inspector of Schools publishes a separate report, occupying nearly three pages.

The Medical Journal of Australia.

SATURDAY, JULY 6, 1918.

Who Will Go?

The military authorities have instructed us to appeal to the medical profession in the Commonwealth to provide men for the immediate needs of the service. A few weeks ago a call was made for one hundred men. The men were required for field service at the front, and consequently only young, active, healthy men, physically fitted for the trying nature of the work in regimental aid posts and advanced dressing stations, were sought. The number of suitable men for this class of work at present available is insufficient, even if those who are eligible can be released from the positions they are now filling in the Army Medical Corps in Australia. It must be clearly understood that the invitation to volunteer for active service is addressed at present to physically sound and athletic young graduates. Men who have physical disabilities, those who are half-way up the ladder toward middle age, and those who have conditions to impose are not sought for service abroad.

At the same time, men who are ineligible for service abroad or middle-aged men are urgently needed for whole-time work within the Commonwealth. These men are required to undertake the duties now being performed by their young colleagues, so that the latter may be released for service with the Australian Imperial Force. While the loss of youth renders a medical practitioner of little value for field work, it does not necessarily remove from him the chances of serving his country in a useful manner. It is necessary that each man should recognize that, in war conditions, the determination of the nature of service which he can render to the greatest advantage to the country, must be left in the hands of the military authorities. Much has been heard of the man who has offered his services and has been passed over with the reply that he would be called upon when wanted. Medical practitioners who are willing to help are never brushed aside, if they indicate that they will be

prepared to undertake any service required of them, either at home or abroad.

We appeal to those who are ineligible for active work with the forces abroad to volunteer for full-time home service and to the young, fit eligibles to volunteer for service abroad. There is urgency, and we therefore call upon the willing ones to offer themselves without loss of time. A large draft is needed for overseas service in a few months' time, and the men should be secured forthwith. The medical profession has responded magnificently in the past. Surely our men will not fail the country now.

A STAGE FURTHER.

The Council of the Victorian Branch of the British Medical Association considered, on June 26, 1918, the report of the Royal Commissioner appointed to deal with the matters in dispute between the medical practitioners who resigned their lodge appointments in November of last year and the friendly societies. The following resolution was carried:—

After consideration of the report of the Royal Commission, the Council of the Victorian Branch of the British Medical Association is prepared to recommend its acceptance. It will, however, be an essential condition that the medical institutes established since November 1, 1917, be abolished, and that the medical staffs of institutes existing prior to November 1, 1917, be reduced to their original strength.

On the following day the Friendly Societies' Association passed the following resolutions:—

That this meeting of the Friendly Societies' Association, after having given careful consideration to the recommendations of the Royal Commission appointed to inquire into the dispute between medical officers and the branches of the friendly societies, resolve—

That the Association, having pledged itself to the principle of arbitration as a means of settling the dispute, accepts the finding of the Commission.

That we greatly deplore the recommendation of the obnoxious income limit, believing as we do that it is an infringement of the *Friendly Societies Act* relating to membership, is an encroachment upon the rights of citizens to the advantages of fraternal co-operative effort and to provide a common necessity, and is destructive to the principle of thrift and to mutual aid. We greatly regret that our future members should be placed in such a position.

That, in view of the circumstances of this State, which emphasize the desirability of settling the dispute, the Government be requested to take immediate steps to have the findings of the Commission put into operation.

That the determinations of the meeting be left in the hands of the Disputes Committee of the Association, to take the necessary action consistent therewith to have the views of the meeting carried out.

The questions of the disestablishment of those medical institutes which were established as a reply to the resignation of the medical officers of the lodges, and

of the dismissal of the additional members of the medical staff of the older institutes were not considered at the time. Until the representatives of the friendly societies comply with this demand, no progress in the direction of a final settlement of the disputes can be hoped for. There are indications, however, that the Friendly Societies' Association will fall into line in this respect, since it has long been apparent that the expedient of medical institutes served by medical practitioners willing to earn a salary at the expense of their professional reputation has been a signal failure. Consequently, it would seem as if the prolonged and most unfortunate quarrel, with its attendant publicity, would soon be adjusted and the normal relations between the members of the friendly society lodges and the medical profession restored.

His Honour Judge Wasley's report demonstrates clearly that the demands of the medical profession in connexion with lodge practice are equitable and just. The claims regarding capitation fees are supported to the full. His Honour considers that, since the members of the friendly societies are paying the contributions of the men away on active service, a concession of three shillings per member per annum should be made while the war lasts. He points out, however, that the generous offer of the Victorian Branch of the British Medical Association that no payment would be required for men at the front, that the dependants of the lodge members serving the country would be treated for nothing, and that, when the men return from active service, they would be placed on the doctors' lists again without examination, should be accepted as a concession, and that the rates demanded by the Branch should be adopted.

The matter of the income limit clause has, unfortunately, not received such favourable consideration. His Honour suggests that a single man or a widower without dependants should be entitled to medical benefit at lodge rates, provided that his income, or the three years' average of his income, does not exceed £260, instead of £206, as demanded by the medical profession. He holds that the medical profession has not been sufficiently liberal in their demands. We venture to differ from this view. The medical profession is pre-eminently liberal in the concessions it

makes to persons of small means. The fact that medical practitioners agree to attend these persons at fees representing about one-eighth of the ordinary fees is irrefutable evidence of generosity.

His Honour further suggests that children of members should receive medical benefit up to the age of 16 years for males and 18 years for females. He expresses the opinion that attendance under the provisions of a lodge agreement would not be given in cases in which a person claims compensation under the Workers' Compensation Act. He proposes that the fee for the examination of a candidate for membership of a lodge should be 2s. 6d., and not 5s., as provided for in the Common Form of Agreement. He also wishes to alter the fee for night visits from 5s. to 2s. 6d. In a similar manner, he proposes a reduction of the mileage rate to 3s. 6d. for each mile beyond two miles for day time and 5s. for night time. The fee for consultation with another medical practitioner is also altered. The original demand was one guinea, but his Honour is of opinion that half a guinea would be fair. Owing to want of space, it is impossible to publish the full report in this issue. We propose to do so next week.

The view has been expressed on several occasions in these columns that the dispute between the lodges and the medical profession should not be determined by arbitration. This view is based on the recognition of the fact that friendly society practice represents a concession, willingly made by the medical practitioners, to persons of small means. The medical practitioners should be the sole arbiters as to who is to be granted the concessions and as to the extent of these concessions. The Government of Victoria dissented from this view, and introduced legislation of doubtful wisdom. Since this legislative effort to satisfy the 130,000 electors at the expense of the medical profession proved vain, the matter was referred to a Royal Commission, in the person of a learned and impartial judge. Neither side was compelled to accept the finding of the Royal Commissioner, but both sides appear to have been impressed by the logic of his recommendations, and to have agreed to a settlement on this basis. The one side, it is true, accepts the principle of the income limit with a bad grace, while the other side insists on the

removal of institutions and men that would disturb the prospects of a smooth working in the future. There is one unfortunate aspect of the present position. In the neighbouring State lodge practice is at present working without hardship to members and without undue profit to the medical officers. The rates are higher than those proposed for Victoria; the income limit is fixed at a lower level, the fees for examination of candidates, for night calls, for travelling beyond a given distance and for consultations are all higher, and the definition of children for the purpose of the provision of medical benefit is more favourable to the medical officer. The process of levelling-up has fallen short to some extent in connexion with all these matters. Sooner or later uniformity throughout the Commonwealth much be achieved for all questions involving medical practice and the protection of the public health.

CIGARETTE SMOKING.

It has been said that tobacco vapour is a poison, but that it usually takes from eighty to a hundred years to kill a man. That it may exercise a baneful influence on the digestive function may or may not be true; that it produces in certain individuals an alteration in the functions of the nervous system, ultimately leading to vascular disturbances, is usually held to be undoubted. How and why it produces these effects no one has yet been able to say. It is commonly taught that tobacco smoking, and especially the inhalation of cigarette smoke, by irritating the bronchi and pulmonary alveoli, renders the individual more prone than usual to infections, including tuberculosis. Gerald B. Webb informed the members of the Laennec Society in February of this year that, while the air passages of only 27% of non-smokers reveal signs of irritation, as evidenced by rhonchi, 83% of cigarette smoke inhalers bear this mark of chronic bronchial irritation. Despite this fact, he found that the frequency of discharge from the army on account of active tuberculosis was not greater among smokers with rhonchi than among non-smokers without this physical sign. Allan K. Krause¹ argues with apparent justification that the views concerning the relation between movement or rest, inflammation and infection usually held do not withstand critical examination. He points out that clinical and pathological data indicate that, while relative rest, such as is met in the apices of the lungs, favours the implantation of tubercle bacilli, extensive movement favours the spread of an established lesion. The bacilli meet with difficulty in gaining an entrance and producing a focal lesion in those portions of the lung that are subject to wide movements. On the other hand, when a focus of disease is established at the apex, it

tends to remain localized and by a process of encapsulation to undergo spontaneous cure. He shows also that sterile inflammatory lesions are rarely the seat of primary infection. Pawlowski, Issayeff and many other pathologists have proved experimentally that artificial infection of a joint, or of the peritoneal cavity, can be prevented by the previous production of a sterile inflammation. There is, however, reason to assume that the inflammatory process may be too violent, and then fails in its rôle of increasing the resistance of the tissues. On the other hand, the superimposition of an inflammation on an existing infection at times leads to the spread of the latter. He deduces from these facts that the inhalation of cigarette smoke, by giving rise to an irritated condition of the bronchial passages, that is, a very mild inflammation, will have the effect of raising the resistance toward infection with tubercle bacilli. Since this irritation is a very mild one, its effect on an already established tubercular focus should be to increase the defence mechanism of the body and to favour the process of encapsulation and spontaneous cure of the localized lesion. Focal reactions of this kind have been studied in tuberculosis, and particularly after the injection of tuberculin. The danger is present only when this reaction is too violent. He thus explains in a most plausible manner why active tuberculosis of the lungs is not met with more frequently among cigarette smokers than among non-smokers. He even suggests that the cigarette smoke inhaler may have the advantage over his more abstemious colleague as regards resistance. But before it would be justified to recommend cigarette smoking for this purpose, further information concerning the effect of tobacco vapour on the digestive and nervous systems is required.

THE USE OF AMYL ALCOHOL IN MICROSCOPY.

Since the establishment of war-time conditions, the price of absolute ethylic alcohol has risen considerably. Not only so, but absolute alcohol has become scarce and at times almost unobtainable. Histologists and those concerned with the preparation of material for microscopical examinations have felt the need for an efficient but less expensive substitute for absolute alcohol. In microscopy absolute alcohol is used *inter alia* for dehydrating pieces of fixed tissues before their immersion in a solvent for the paraffin, used in embedding a mass of tissue so that sections may be cut with a microtome, for passing sections from 95% alcohol to a clearing agent and for removing from sections the solvent of the paraffin previous to passing them through various strengths of alcohol to some stain.

During the meeting of the Society of Biology at Paris on March 9, 1918, the eminent histologist, Professor F. Hennequy, presented a note¹ from A. Ch. Hollande on the employment of amyl alcohol in microscopical technique. This investigator had shown in 1914 that amyl alcohol can replace absolute alcohol in preparing microscopical objects. Tissues can be passed directly from cask spirit, or 92% alcohol, into amyl alcohol, and thence into liquid paraffin, and

¹ John Hopkins Hospital Bulletin, May, 1918.

¹ C.R. Soc. Biol., Paris, Vol. LXXXI., p. 223, March, 1918.

finally into the treated paraffin of the embedding oven. Tissues keep indefinitely in the liquid paraffin while they undergo slow disintegration in 70% alcohol. For mounting sections upon slides amyl alcohol can be used, instead of absolute alcohol, to dehydrate the tissues before applying xylol. Amyl alcohol mixes readily with xylol and with cask spirit. In dealing with serial sections, amyl alcohol has the great advantage that it does not take up water from the air in quantities sufficient to prevent it yielding a transparent solution with xylol. The tissues show the details of fine, cellular structure as well with amyl alcohol as with absolute ethyl alcohol. Amyl alcohol has a special value in the mounting of specimens stained with eosinate of methylene blue, *e.g.*, Giemsa's stain, since it does not decolourize the preparations. The use of amyl alcohol, which has many advantages over absolute alcohol, may continue when economical reasons no longer favour its employment.

Naval and Military.

CASUALTIES.

In the 412th list of casualties, which was published on June 26, 1918, there are two entries of medical officers of the Australian Imperial Force who have been wounded (gas). These are Captain Errol Solomon Meyers and Captain Collin Gordon Templeman. In the same list it is announced that Captain Julius Edward Streeter is dangerously ill. Notwithstanding the large number of names contained in the 413th list, there is no reference to a casualty sustained by any medical officer of the Australian Army Medical Corps.

APPOINTMENTS.

Australian Naval and Military Expeditionary Force.

Army Medical Corps.

His Excellency the Governor-General, acting with the advice of the Federal Executive Council, has been pleased to approve of the appointment of the undermentioned officer being terminated from the date stated:—

Captain J. T. Anderson. Dated 11th May, 1918. This officer has been appointed to the Australian Army Medical Corps Reserve, and has been granted the honorary rank of Captain as from January 9, 1918.

REGULATIONS.

The Australian Military Regulations have been amended and altered by Statutory Rule No. 122 in regard to the Army Medical Corps and the Army Medical Corps Reserve. This Rule was approved on May 15, 1918, and came into operation on the following day.

The following new Division and Regulations are inserted after Regulation 77:—

Division 7A.—Appointment to First Commission, Promotion and Service in the Australian Army Medical Corps.

77A. (1) First appointments, in the case of registered medical practitioners not liable to undergo compulsory training under Section 125 of the Act, will be made to the rank of Captain (provisionally).

(2) Persons liable to undergo compulsory training under Section 125 of the Act may, on becoming registered medical practitioners, be recommended for appointment as officers, with the rank of Lieutenant (provisionally).

77B. When a registered medical practitioner is appointed as an officer under the provisions of Regulation 77A (2) he will be allotted to a Field Medical Unit for duty. Provided that in cases where this is impossible owing to distance of residence from a training centre

or where no vacancy exists in the authorized establishment, such officer shall be supernumerary, and will attend a Camp of Continuous Training and perform such other duties of the Army Medical Service as may be ordered.

77C. (1) District Commandants will appoint Boards to carry out the theoretical and practical examination for confirmation of provisional appointments to commissioned rank up to and including the rank of Captain.

(2) Examinations for promotion to any rank higher than that of Captain will be conducted under instructions from the Director-General, Australian Army Medical Services.

77D. (1) Persons who have been appointed as officers under the provisions of Regulation 77A (2) and who have completed their service in accordance with the provisions of Regulation 77B will, on reaching the age of 26 years, be taken to have completed their period of compulsory service.

(2) On reaching this age any such person may—

- (a) be promoted to the rank of Captain (provisionally) should there be a vacancy on the authorized establishment; or
- (b) be placed on the Australian Army Medical Corps Reserve with the honorary rank of Captain; or
- (c) resign his commission.

According to a new regulation, all members of the Australian Army Medical Corps Reserve are liable to be called out for military service, and may, on approval of the Military Board, be employed on military duties as required. The Australian Army Medical Corps Reserve is composed *inter alia* of (a) medical officers on the Reserve of Officers, Australian Military Forces List, and (b) duly qualified and registered members of the medical profession.

SCHOOL INSPECTION IN TASMANIA.

The Minister for Education in the State of Tasmania has issued his report for the year 1917. Contained in this report are extracts from the reports of the medical officers, and, in addition, he devotes a paragraph to the subject of medical and dental inspection.

The Minister points out that the children of the Hobart and Launceston schools come under the observation of the part-time medical officers every week. Two full-time medical inspectors deal with the country schools. Their duties include enquiry into the hygienic condition of the school premises, examination of the pupils, with special reference to defects of eyesight and hearing and to the presence of adenoid vegetations, giving advice to the parents of children found on inspection to have physical defects, and, finally, lecturing to the students of the Training College and Wellington Square Practising School. Full-time school nurses are engaged in Hobart and Launceston. These nurses visit the homes of children in the process of following-up, take the children of poorer parents to the hospital for treatment, and carry out minor surgical dressings. He states that the employment of bush nurses as part-time school nurses has not proved an unqualified success. In the last place, he deals with the work accomplished in the dental clinics. The children are first examined by the medical officer, then notices are sent to the parents of children who have defective teeth. If treatment is not obtained privately within a month or other specified time, the children are attended to at the clinics.

Southern District.

Dr. Ethel M. Hawkins, the Medical Officer of the Southern District, reports that she visited 123 schools during the year, including seven convent schools. In the course of these visits she inspected 4,963 children. After the visit to a school, the mothers were invited to meet Dr. Hawkins, in order that the significance of the defects discovered could be explained, and the mothers urged to take the necessary steps to have remedies applied. Dr. Hawkins points out that few of the mothers respond to this invitation, and that it is especially those whose children are suffering from bad defects who do not come. On the other hand, she has found that when an opportunity presents itself of talking to the parents, little difficulty is experienced in persuading them to have their children treated.

In regard to school buildings, Dr. Hawkins reports that all those belonging to the Education Department in the Southern District were adequately lighted and ventilated. At times, however, the top sash of the windows is kept closed, on account of the fact that, when opened, the blinds tend to rattle in strong winds. She suggests that the blinds should be lowered from 15 to 22 cm. Dual desks were being introduced in many schools, in the place of harmful long desks and forms. She reports that all the schools were clean, and were made bright and attractive by means of flowers and pot plants.

Of the 4,963 children, 99 had vision less than $\frac{1}{40}$. The other ophthalmic defects were strabismus (three cases), conjunctivitis (one case) and congenital cataract (one case). In 47 of the children the hearing was less than $\frac{1}{30}$. In the majority of these cases it was found that adenoid vegetations had led to the deafness. Pathological conditions of the naso-pharynx, including adenoid growths and enlarged tonsils, were found in 420 children. Dr. Hawkins points out that, in addition to these children, others had slight naso-pharyngeal defects. While these minor defects did not call for notification, they were regarded as suspicious signs necessitating careful watching.

In seven instances valvular disease of the heart, usually of rheumatic origin, was discovered. There were 32 children who showed signs of marked anemia. These children, she discovered, slept in rooms with the windows closed. She urged the parents to give the children the benefit of fresh air. There were nine cases of scabies. These children were excluded from the school. During the first year of her activities as Medical Officer, Dr. Hawkins had detected 70 cases of pediculosis capitis. In the year 1917 there were only seven cases. Body lice were discovered on one child, who was excluded from the school.

Twenty-seven of the children had defective speech. In nine cases the children stuttered, while two had cleft palates and two were tongue-tied. There was one child who suffered from epilepsy and two who suffered from *petit mal*. In addition, three children had spinal curvature, one had hydrocephalus, one had webbed fingers, and one had a benign tumour of the lower jaw. In no case was marked tuberculous discovered, although enlarged cervical glands were present in one child. No less than 3,031 of the 4,963 had defective teeth. Dr. Hawkins points out that this demonstrates the need of dental treatment and a better acquaintance with the tooth brush. She states that there were 18 children with marked degrees of mental deficiency. The fact that she had the task of examining practically 5,000 children made it quite impossible for her to detect the higher grades of moronism.

During the course of the year diphtheria occurred at four schools, in addition to a "diphtheritic throat" at one school. The other infective diseases occurred at single schools, and included enteric fever, varicella, scarlatina, parotitis, meningitis and pertussis. Morbilli occurred at two schools, while pediculosis and scabies were limited to one school each. The prompt measures recommended in the regulations no doubt prevented the spread of these diseases.

Northern District.

Dr. M. J. Moffatt, the Medical Officer of the Northern District, visited 74 schools and examined 4,973 children. Special visits were paid to four schools on account of diphtheria outbreak, and for the purpose of detecting carriers of the diphtheria bacillus. She reports that parents' meetings were held in the larger schools, and that considerable interest had been awakened in the provision for the treatment of dental defects. Between 97% and 98% of the children were found to have defective teeth requiring treatment. She anticipates that the general health of the children will be markedly improved when these dental defects are remedied. In regard to the construction of the schools, she has little fault to find, although in one or two instances the management of the ventilation and lighting has been unsatisfactory.

The number of children whose vision was less than $\frac{1}{40}$, in one or both eyes was 83. Several children were wearing unsuitable glasses. Dr. Moffatt points out that thorough examination of the eye for the purpose of determining the refraction necessitates retinoscopy after the installation of a mydriatic. It will be remembered that in Tasmania the

opticians are registered by Act as persons competent to test sight. That an optician is not to be trusted to carry out his work is proved by the fact discovered by Dr. Moffatt. It would be useful if the School Medical Officer could obtain information concerning the persons who prescribed glasses that were found to be unsuitable, and if the Department would take action when, from the report of the Medical Officer, harm had accrued as a result of the faulty diagnosis. In 48 cases blepharitis was present, in 30 there was a squint, in two ptosis and in one a pterygium. Defective hearing was diagnosed in 23 children. In the majority of cases the deafness was due to adenoid vegetation. The throat and nose defects detected included 213 enlarged tonsils and 79 post-nasal growths. These figures are smaller, as compared with those of the previous year. Enlargement of the thyroid gland was present in 49 cases. In three of them other symptoms of Graves' disease were also present. Seventeen children were excluded from school from skin affections of an infective character. There were 12 instances of a skin rash somewhat like scabies, four of impetigo and one of ringworm.

Among the other defects discovered were 17 cases of anemia, one of acute chorea, one case of cleft palate, and one of a congenital deformity of the foot.

Hobart.

Dr. A. H. Clarke, the part-time School Medical Officer for Hobart, reports that he examined 1,800 children, 1,710 of whom had not been examined before. Defects were found in 482 children. Of these, 102 were ophthalmic defects, 27 were defects of hearing and of the ear, 240 were adenoid vegetation, 14 were goitres and seven were cardiac defects. There were seven isolated cases of scabies. Dr. Clarke reports that there was a marked improvement in the general appearance and cleanliness of the children at a certain school, and that the standard of cleanliness throughout the schools in the city was satisfactory. He appears to have had some trouble with outbreaks of diphtheria. There were 46 cases among school children during the year; 18 of which took place in one school. These outbreaks were dealt with promptly. The bacillus carriers were sought for by bacteriological methods, and, when found, excluded from the school, and the school-rooms were disinfected.

In connexion with Dr. Clarke's report, a table is added containing information concerning 371 visits paid by the school nurse to the children's homes. Apparently, 482 defects were reported to the parents. In the vast majority of instances treatment was obtained. It is stated that 90 of the children were to be treated; 13 were under observation; in six cases the treatment was postponed, while in 14 the parents had left the house.

Launceston.

The report of Dr. G. H. Hogg, the part-time Medical Officer for Launceston, contains reference to a severe epidemic of parotitis, which interfered considerably with the school attendance for about six to eight weeks, as well as to milder epidemics of pertussis and diphtheria. Dr. Hogg attributes the improvement in the cleanliness and general appearance of the children to a large extent to the efficient manner in which the school nurse carried out her duties, with the collaboration of some of the teachers. He points out that but little progress has been made in school hygiene. This is the result of the failure of the authorities to realize the importance of the subject. The small advance that has been made he attributes to the activity of the Department of Education, and he urges that a much larger sum of money should be placed at the disposal of the department, in order that it might develop the medical side of its work. He expresses the opinion that the work carried out in the Dental Clinic has had a valuable effect on the health and comfort of the children.

During the course of the year he examined 921 children, and discovered no less than 1,228 individual defects. Treatment was obtained for 1,189 of the defects. In ten cases the operation for the removal of enlarged tonsils and adenoid vegetations was postponed, while the question of treatment was under consideration in fourteen of these cases and in three of defective sight. In the case of two children the treatment was refused. In all, four children died during the year; two from diphtheria, and one each from pneumonia and meningitis.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(1) Acanthosis Nigricans Following Decapsulation of the Kidneys.

A case which is unique, and which throws some light on the aetiology of *acanthosis nigricans*, is reported by F. Wise (*Journ. Cutan. Diseases*, January, 1918). The patient, a young unmarried woman, aged 25 years, was, according to the history, stated to have swallowed a solution containing 0.45 gm. of mercuric chloride. Following her recovery she was advised to consult a surgeon, who counselled and performed decapsulation of the kidneys. A year later she experienced a generalized dermatitis, affecting the entire integument, which subsided in several weeks, and gradually returned to normal. A few weeks afterwards the skin assumed a yellowish-brown tint, most marked on the neck, in the axillae and groins, whilst the face and hands alone were unaffected. Then, brown warty growths appeared in the axillae and groins, whilst the palms and soles became harsh and dry, and the quadrillations of the skin more prominent. On examination, it was observed that the entire surface of the body was involved, with the exception of the upper portion of the face, forehead and scalp. The skin showed various degrees of hyperpigmentation, from a light yellowish-brown on the face, trunk, and lower extremities, to a brownish-black in the axillae and groins. A pronounced feature in the latter regions were the masses of pinhead to lentil sized, closely aggregated, brown to black, soft, filiform and warty excrescences, which possessed a peculiar velvety consistency. These regions were also devoid of hair. A moderate degree of hyperkeratosis was to be observed on the palms and soles, and here was also exhibited, like the greater portion of the integument, an accentuation of the natural lines and furrows. The author states that the condition must be considered one of the so-called benign, or juvenile forms of *acanthosis nigricans*, which usually occurs in children and adolescents, and presents no disturbance of the general health, no visceral tumours or morbid growths. It differs from the malignant form, clinically, in the absence of changes in the mucosae, and in the hair and nails. The literature shows that in the large majority of adult cases there is usually some malignant involvement of one or more of the abdominal viscera, and in a review of 35 cases in adults collected by Pollitzer, there was more or less authentic evidence of associated abdominal carcinomatous growth in 23. The most acceptable theory in regard to the production of the cutaneous dystrophies is: (1) In the adult form malignant, or metastatic growths produce derangements in the abdominal

sympathetic, whilst (2) in the juvenile or benign type, congenital malformation, benign growths, peritoneal adhesions, in some manner cause an interference with the functions of the abdominal sympathetic system.

(2) Schamberg's Progressive Pigmentary Dermatitis.

Lyle Kingery, in recording a case of progressive pigmentary dermatosis, states that since Schamberg's original case reported in 1901, no further cases have been reported in American literature, but a few cases have been observed by English dermatologists (*Journ. Cutan. Diseases*, March, 1918). The patient was a farmer, *act.* 66, and the disease first attracted his attention in 1912, when he noticed a brown spot on the outer aspect of the left leg, which increased in area during the next 18 months, and then began to fade. Following an operation for gallstones about this time, the pigmentation again manifested itself, and gradually spread. Subjective symptoms had been absent. Examination showed the anterior aspect of both legs to be involved, mainly about their middle third, and to exhibit in parts a diffuse reddish-brown or rusty discolouration, and in parts closely set brownish-yellow cayenne pepper like macules. The latter were also to be seen around the borders of the diffuse patches, which are somewhat sharply circumscribed. There was a similar diffuse patch of pigmentation beneath the left internal malleolus. Scaling was present over some of the patches, and the integument generally exhibited a certain degree of senile atrophic change. The outstanding features in a section removed from the central, more deeply pigmented portion were: (1) The atrophic appearance of the *rete malpighii*, with an absence of the rete pegs. (2) A pronounced infiltration of the subpapillary portion of the corium, composed of mononuclear lymphocytes, numerous polynuclear cells, and occasional mast, plasma and epithelioid cells. (3) Throughout the corium, but more marked in the subpapillary layer and around the sweat coils, were small groups of greenish to golden yellow granules, occurring both intra- and extra-cellularly. When sections were stained with a saturated aqueous solution of potassium ferrocyanide, differentiated in alcohol, and counter-stained in alum and lithium carmine, these granules gave a most positive Berlin blue reaction. The pathological picture thus represented a chronic, low grade, inflammatory process, plus pigmentary deposits, and the pigment being an iron derivative, naturally pointed to the blood stream as its source of origin. There was a proliferative endarteritis of moderate degree, and numerous newly-formed capillaries, which suggested a local angiectatic process through which the circulation was impeded, followed by a diapedesis of erythrocytes and their disintegration and resulting pigmentation, commensurate with the capillary proliferation.

(3) The Effects of Dust Inhalation on the Lungs.

Pancoast, Miller and Landis have carried out a systematic investigation of 137 cases of pneumoconiosis (*Amer. Journ. Röntgenol.*, March, 1918). The usual distribution of the changes following the inhalation of the foreign particles was determined by a thorough clinical examination, followed by an X-ray examination. Coal-miners, cement workers, potters, tobacco workers, and members of numerous other dusty occupations were included in this series. Three stages are recognized. In the first stage, irritation from the inhaled particles causes chronic bronchitis, with peribronchial fibrous changes, which are recognizable radiographically by increase in density of the hilus shadows and of the bronchial trunk shadows. The second stage is recognized by bilateral mottling and localized fibrosis of the lungs; in cement workers and coal-miners this stage is reached very early, and the right lung is generally more involved than the left. The third stage is one of diffuse fibrosis, with deficient air-entry and fixation of the diaphragm. In this stage there may be displacement of the heart from fibrous bands contracting. Bronchiectasis is common in this stage. Dyspnoea is marked, and slight exertion will cause marked breathlessness. The differentiation from pulmonary tuberculosis is difficult, but the clinical examination should be of use.

(4) Congenital Deformity of Feet and Hands.

Thurstan Holland describes two of rare varieties of congenital abnormality of the feet and hands (*Arch. Radiol. and Electrotherap.*, January, 1918). In the first case the abnormality consisted in the fusion of the cuboid with the base of the fourth metatarsal; the fusion of the external cuneiform with the base of the third metatarsal; the partial fusion of the middle cuneiform with the base of the second metatarsal; the complete fusion of the scaphoid with the internal cuneiform, and a poor development of the joint between the internal cuneiform and the base of the first metatarsal bone. In the second case the abnormality extended to both feet and both hands. The corresponding parts were smaller. The abnormality in the feet consisted in the fusion of the *os calcis* and the cuboid; the partial fusion of the external cuneiform and the base of the third metatarsal bone; the complete fusion of the middle cuneiform with the base of the metatarsal bone; and the complete fusion of the astragalus with the scaphoid. The abnormality in the hands was composed of the fusion of the cuneiform and the unciform bones; the fusion of the *os magnum* and trapezoid; the misplacement of the semilunar bone to a position almost between the *os magnum* and unciform, and the abnormal articulation with both of the bones, and the abnormal

shape of the scaphoid in each hand. To the naked eye the feet did not appear to be abnormal. The wrists, however, were not as freely moveable as normal.

BIOLOGICAL CHEMISTRY.

(5) Urinary Excretion of Methylene Blue.

C. Botelho (*C.R. Soc. Biol., Paris*, March 23, 1918) describes a new method for detecting the presence of methylene blue in urine. The method can also be used to determine approximately the amount of methylene blue eliminated through the kidneys in 24 hours. The test depends on the power possessed by sheets of collodion immersed in a coloured fluid to adsorb the colouring matter and to remove it from solution in the liquid. The qualitative demonstration of the presence of methylene blue is carried out in the following manner: A few drops of the official solution of collodion are placed on a microscopical slide and spread over the surface of the glass by another slide in the same way as in making blood-films. After evaporation of the solvent, the films are stripped from the glass and immersed in the urine to be tested. The urine should be previously boiled with acetic acid, to change any chromogen into methylene blue. After ten minutes' submersion the films are taken out of the urine and dried. By examining several thicknesses of the film, traces of methylene blue can be easily noticed. For the rough estimation of the amount of methylene blue excreted by a man in 24 hours after an intramuscular injection of 5 cg. methylene blue, the author assumes that 25 mg. methylene blue are excreted by normal kidneys in 24 hours. Films are made by pouring 5 c.c.m. of accurately-made collodion, preserved in a well-stoppered bottle, upon glass plates, 9 cm. X 12 cm., and by spreading the collodion evenly over the whole surface. When the solvent has evaporated, the film is separated from the glass. One-fifth of the quantity of urine, passed in 24 hours after the injection of methylene blue, is placed in a flask and boiled after the addition of acetic acid. Half a film of collodion is dropped into the flask, and the contents boiled for ten minutes. If the urine be not decolorized, another half film is added and ebullition continued for another ten minutes. The films are added after successive boilings for periods of ten minutes, until the urine is no longer coloured blue or green. Two films adsorb 1.66 mg. methylene blue, the amount secreted through normal kidneys. Delayed secretion can be readily detected if the urine is quickly decolorized and the diminished excretion approximately measured.

(6) Estimation of Tryptic Activity.

P. Carnot and H. Mauban (*C.R. Soc. Biol., Paris*, April 13, 1918) have devised a clinical method for measuring tryptic activity in the duodenal fluid, obtained directly through a tube passed

through the stomach, by the clarification of opalescent suspensions of egg-white. They have found that the excellent methods at present in use are not suited for yielding quick results with fluids endowed with low tryptic properties. The weight of cubes of coagulated egg-white before and after digestion cannot be employed, owing to the small amount of fluid available for the estimation and to the diluence that occurs on the attacked surfaces. Mett's tubes filled with egg-white are not sufficiently sensitive. A brown mass forms in the ends of the capillary tubes and hinders the digestion. With Mett's tubes filled with coagulated horse serum or with coagulated extracts of muscle of beef, veal, chicken and pork, digestion is more rapid, but at least a day is needed for accurate results with weak digestive fluids. Better results have been obtained with tubes, filled with gelatine (5% to 10%) coloured with eosin, which are digested for 12 hours at room temperatures. The best results have been obtained with the opalescent suspensions produced by heated dilute solutions of egg-white. A stock solution is made by mixing one part of egg-white with three parts of 1% artificial serum and beating the mixture with a whisk. After 24 hours the fluid is drained off and preserved with camphor. For use, one part is mixed with 30 parts of distilled water and the mixture heated to 90° C. for some minutes. A series of tubes receive 4 c.c.m. of the opalescent solution and increasing amounts of duodenal fluid from 0.05 c.c.m. to 0.5 c.c.m. The tubes are incubated at 37° C., and are examined each five minutes. With juice of normal activity, the tubes with more than 0.4 c.c.m. are clear and transparent in five minutes, the tube with 0.3 c.c.m. in ten minutes, the tube with 0.2 c.c.m. in twenty minutes, the tube with 0.1 c.c.m. in 50 to 60 minutes and the tube with 0.05 c.c.m. in 90 to 105 minutes. By plotting the results as a curve, it is easy to obtain an accurate idea of the relative activity of different tryptic fluids.

(7) Formation of Creatine.

W. H. Thompson has examined the effect on the excretion of creatine in birds produced by paraformaldehyde and hexamethylene tetramine, given separately, and in combination with arginine carbonate and other substances (*Biochemical Journal*, December, 1917). During a series of investigations, occupying several years, the author has examined the fate of arginine after its introduction into the animal body. He has shown that a portion of the guanidine nucleus of the arginine is methylated, and the product in either excreted in the urine or stored in the muscles as creatine, or both. The proportion of the guanidine nucleus methylated is greater when the arginine is administered by hypodermic injection. The administration of paraformaldehyde and arginine with the food to ducks was followed by an increased excretion of creatinine the output being approximately doubled.

After the subcutaneous administration of the same quantities of arginine and paraformaldehyde, the excretion of creatinine rose to fifteen times its previous amount. The injection of paraformaldehyde alone greatly increases the excretion of creatinine, though its oral administration does not affect the amount of the urinary creatinine. Arginine and hexamethylene tetramine, given in the food, increase the excretion of urinary creatinine, though hexamethylene tetramine alone has no effect on the excretion. The subcutaneous injection of the two substances increases the amount of urinary creatine, but only slightly more than the oral administration. The subcutaneous injection of hexamethylene tetramine into ducks does not increase the output of creatinine to any greater extent. The author endeavours to show the manner in which the formaldehyde assists the synthesis of creatine by a series of chemical equations.

(8) Estimation of Glucose in Urine.

O. Folin and W. S. McElroy have examined the use of copper phosphate mixtures for the qualitative detection and quantitative estimation of glucose in urine (*Journ. Biol. Chemistry*, March, 1918). They have found phosphates useful for making solutions of copper hydroxide, since phosphates are less expensive than citrates or tartrates, since they do not reduce cupric to cuprous salts and since they maintain a lower degree of alkalinity than can be obtained with carbonates alone. For qualitative tests they use a solution, containing 100 gm. sodium pyrophosphate, 30 gm. crystallized disodium phosphate and 50 gm. anhydrous sodium carbonate dissolved in a litre of water, to which 13 gm. copper sulphate is added after solution in 200 c.c.m. water. The solution keeps well. It is used in the same way as Benedict's solution. For quantitative purposes, the authors use an acidified solution of copper sulphate containing 60 gm. per litre. A dry mixture of 100 gm. disodium phosphate, 60 gm. dry sodium carbonate and 30 gm. sodium sulpho-cyanide is also employed. The titration is carried out in a test-tube. Five cubic centimetres of the copper solution are placed in a test-tube along with 4 gm. or 5 gm. salt mixture. The salts are dissolved by heat and agitation. Urine is added from a burette, until the blue colour has disappeared after boiling five or six minutes. A rough assay is done first and a second exact determination is made, in which attention is paid to the time of boiling. There is no necessity to dilute the urine, even when estimating high concentrations of glucose. The authors lay much stress on the increased accuracy of titrations involving the use of the burette, if the burette is filled from below by suction and not in the usual manner through a funnel. They state that, after a burette has been emptied of a 5% solution of glucose through the stopcock, distilled water, poured into the burette, will be found free from glucose by all ordinary tests.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on May 31, 1918, Dr. A. A. Palmer, the President, in the chair.

Dr. L. Herschel Harris read a paper on the value of X-rays in the diagnosis of gastro-intestinal lesions, from the radiographic point of view (see page 1).

Dr. J. G. Edwards gave an interesting lantern demonstration, illustrating the Röntgenological appearances in gastro-intestinal affections. As each picture was thrown on the screen, the speaker pointed out the salient characteristics and the signs of diagnostic importance. On pages 9 to 11 will be found the notes and skiagrams of a few of these cases.

Dr. C. Ayres read a paper on the value of X-rays in the diagnosis of gastro-intestinal cases (see page 5).

Dr. C. E. Corlette expressed his pleasure at having listened to the interesting papers, and at having witnessed the equally interesting demonstration of Dr. Edwards. He expressed the hope that one of the results of this discussion would be the more frequent use of skiagraphy as a method of examination. In his experience, a large number of patients suffered from gastro-intestinal affections for years without having had the advantage of an X-ray examination. He was aware that many practitioners were in the habit of pooh-poohing the method, possibly because of a few mistakes. He held the opinion that X-ray examination had in many cases replaced the chemical examination of the gastric contents. While he admitted that radiographers occasionally made mistakes, he pointed out that no one was immune to this defect. When a surgeon opened the abdomen to look for a duodenal ulcer that had been diagnosed by a radiographer, and failed to find the lesion, he should not be convinced that there was nothing the matter. His own practice had been to perform a gastro-enterostomy in these cases, if the clinical history and the radiographer's report appeared to justify the diagnosis. While he admitted that this was a bold thing to do, he had found that it not infrequently led to a cure. In other cases, radiological examination revealed a lesion in a region that was not suspected as a seat of trouble. At times, symptoms were referred from affected organs to other organs, and, in these cases, the skiagram often helped to put the surgeon on the right track. He was convinced that the time would come when a Röntgenological examination of patients suffering from gastro-intestinal affections would be regarded as just as important as the use of the stethoscope.

Dr. C. MacLaurin stated that he always made a careful analysis of the patient's history, that he always had a Röntgenological examination carried out, and that he always had the gastric contents examined chemically. He held that the use of X-rays was of great importance in the diagnosis of cancer. As far as his experience went, it never made a mistake. In gastric or duodenal ulcer the results were not so reliable. On the other hand, he recognized the possibility that small ulcers might be overlooked at the operation. If the skiagrapher made a definite diagnosis of ulcer, an ulcer was certainly present. He never hesitated to open the abdomen when there was hyper-acidity and other positive clinical signs, even if the radiographic examination was negative. In many of these cases it was necessary to open the stomach transversely, and to make a thorough examination of the whole of the stomach wall. He considered that the results of excision of an ulcer or of gastro-enterostomy were among the best in surgery.

In reference to Lane's kink, he stated that many people maintained that they had found it. He had looked for it, but had not yet found it, although he lived in hopes. He referred to a patient, who was at the time an inmate of the Randwick Hospital, in whose case the diagnosis of a kink had been made. He would watch this patient carefully, with the object of finding a kink.

Dr. D. Kelly pointed out that radiographers were specialists, and, consequently, the ordinary surgeon was not able to discuss the technical parts of a radiographer's paper. He had listened with great pleasure to the three communications. He was very pleased to learn that the

speakers had asked surgeons to supply them with full clinical information concerning cases sent for examination. In regard to stomach lesions, he thought that practitioners were too prone to take short cuts in attempting to arrive at a diagnosis.

He asked Dr. Herschel Harris if he could explain the fact that in a skiagram the stomach always appeared to reach below the level of the umbilicus, while, when the abdomen was opened, the organ was found to be high up. He also enquired whether information could be given concerning the manner in which the stoma functionated after gastro-enterostomy. He asked whether any skiagrams existed illustrating the results of pyloroplasty undertaken in children for pyloric stenosis. He wished to know how the radiographer differentiated between early cancer of the stomach and simple ulcer. His experience had taught him that, when the radiographer made a definite diagnosis of ulcer, he was always right. He also asked a question with regard to the radiological evidence of the passage of a gall-stone along the lesser curvature to the duodenum.

Dr. R. Gordon Craig added his appreciation of the interesting papers that had been read. He had noted that the radiographers had been very modest in their claims. He referred to the mechanism in the production of hunger pain. Turning to the surgical aspects of gastro-intestinal lesions, he admitted that Dr. Herschel Harris's claim that the diagnosis arrived at by the application of X-rays was correct in 80% of the cases, was rather an underestimate. He spoke enthusiastically of the almost magical results of X-ray diagnosis. Some years before he had bought an X-ray outfit, but had found after a short time that the speciality was too large a one for a busy surgeon to master. The surgeon and the radiographer were in the fortunate position of being able to confirm their diagnoses on the operation table. The physician, on the other hand, had to seek the confirmation of his diagnoses on the post-mortem table.

In dealing with the function of the stoma produced by gastro-enterostomy, he pointed out that it continued to operate in the presence of cicatricial tissue. When the ulcer healed, the pylorus resumed its normal functions again. This had been demonstrated in experiments on dogs. The patient, after gastro-enterostomy, was not in a normal condition. He referred to the result in a typical case. The patient was clinically cured and was satisfied with his condition. If he lifted a weight, however, or if he received a blow in the epigastrium, he vomited bitter material and complained of a peculiar pain. In these cases there was always a possibility that the pylorus might become occluded.

Dr. Craig dealt with the diagnosis of malignant disease of the stomach. He had had experience of a case in which a tumour had been diagnosed from the clinical signs, although the skiagram did not reveal a cancerous lesion. At the operation he had found a diffuse carcinomatous infiltration of the stomach wall. There was no localized tumour. In the absence of any filling defect, the skiagram had been at fault.

He considered that Dr. Corlette's practice of performing gastro-enterostomy, when no lesion was found at the operation, on a clinical and Röntgenological diagnosis, was open to criticism. He thought that his experience was unique in obtaining relief in these cases.

Dr. Sinclair Gillies had found that the results in a series of over a hundred cases in which barium meals had been given, had been satisfactory. In about 90% of the cases the clinical, Röntgenological and operation findings, had agreed. The diagnosis was certainly more reliable than it had previously been.

After making a few remarks on the production of atonic stomach with hypersecretion, he referred to Dr. Herschel Harris's statement that in cases of hour-glass contraction sufficient belladonna should be given to paralyse the muscle. He raised the question whether one large dose of atropine, such as 0.001 grm., given just before the meal, would not do just as well as repeated doses of belladonna.

In his experience, it had become the fashion for patients to ask for an X-ray diagnosis. This was certainly a great help to the medical practitioner. He suggested that, in the case mentioned by Dr. Craig, a chemical examination of the

gastric contents would have prevented the mistake in diagnosis. He opposed the practice of performing gastro-enterostomy when there was no evidence of ulcer or of obstruction. In these cases the patients were usually neurotic, and belladonna sufficed to remove the symptoms, even in the presence of hypersecretion.

Dr. Herschel Harris, in reply, questioned whether Dr. Ayres was correct in his statement that barium passed through the stomach nearly twice as quickly as bismuth. He admitted that the passage was more rapid, but gave the proportion as six hours to five and a half hours. In regard to the question as to whether or not duodenal ulcer was associated with a residue, he stated that this would depend on whether the lesion was obstructive or non-obstructive. He did not agree that the detection of a deformed duodenal cap justified the diagnosis of duodenal ulcer.

In reply to Dr. Corlette, he said that he always advised surgeons to examine the appendix and gall-bladder, when the diagnosis arrived at from the skiagraphic appearances did not coincide with the operative findings.

He again emphasized the necessity of having a well-trained assistant and Sister in the radiographic department of hospitals. In reply to Dr. Kelly's question, he presumed that the difference in position of the stomach was that the skiagram was frequently taken with a patient in the vertical position. There was a fall of at least 15 cm. It had been demonstrated by X-rays that when the ulcer had healed after gastro-enterostomy the stoma no longer functionated, and the food passed through the pylorus. He referred Dr. Kelly to his paper for the points in the differential diagnosis between ulcer and cancer. In reply to Dr. Gillies, he explained the better results which they were obtaining by improvements in apparatus and in technique. He usually gave four doses of 1 c.cm. of tincture of belladonna. He presumed that one large dose of atropine would do just as well, but the physician would have to take the responsibility in the case of any idiosyncrasy against the drug. In conclusion, he complimented Dr. Edwards on the excellence of the slides he had demonstrated, and also referred to the fine work that Dr. Sear had done.

Dr. Edwards explained that the failure of gastro-enterostomy to effect a cure of ulcer would be due to the non-closure of the pylorus.

Dr. Ayres expressed his disappointment that no surgeon has spoken of the incompetence of the ileo-caecal valve as a cause of ileal stasis or of the operation for its repair. He maintained that Lane's kinks and bands were definite causes of this stasis.

He adhered to his statement that barium passed through the stomach nearly twice as rapidly as bismuth. This fact was one of the reasons for its introduction and general adoption. In regard to duodenal ulcer, he pointed out that there was usually rapid emptying of the stomach. When it was associated with a six-hour residue, there was always some obstruction. Hunger pain was most common in duodenal ulcer; it was always due to a spasmodic contraction in an empty stomach.

Medical Societies.

WESTERN MEDICAL ASSOCIATION (N.S.W.).
(Affiliated with the British Medical Association.)

A meeting of the Western Medical Association was held on June 7, 1918, at Parkes, New South Wales, Dr. Brooke Moore, the President, in the chair.

The President referred in well-chosen terms to the loss the Western Medical Association had sustained through the death, on active service, of Major J. B. Metcalfe, M.C., who had practised at Wellington prior to his enlistment in the Australian Army Medical Corps.

It was resolved that a letter be sent to his mother, expressing the sympathy of all the members.

The President dealt with the general apathy which men revealed in regard to the war. In the early days there was considerable enthusiasm. He said that it was a matter for

regret that the medical profession as a whole could not claim that they had utilized the opportunities provided by the war to a full extent to improve the practice of medicine and surgery. After four years those who had remained behind, had not organized properly to protect the interests of those who were still away on active service. Many of these men were making great sacrifices. Fifteen members of the Western Medical Association had been or were still away on active service. Their interests had never been taken care of by the Association. He expressed the opinion that the Western Medical Association had not been singular in this respect.

The resignations of Dr. L. W. Roberts and Dr. T. Daly were accepted with regret. Both these members had left the district.

Dr. A. E. Colvin was appointed Honorary Secretary and Treasurer in the place of Dr. Roberts.

It was moved by Dr. C. B. Howse, seconded by Dr. J. T. Paton, and resolved:—

That the Western Medical Association strongly protests against the present treatment by the Council of New South Wales members of the British Medical Association who are away on active service, and urges that the Council make all such members honorary members with full benefits. This Association considers that if necessary a fund should be started to have the terms of this resolution carried into effect.

It was also moved by Dr. J. T. Paton, seconded by Dr. A. S. Walker, and resolved:—

That all military work, examination of recruits, pensions, etc., in towns where there are returned medical men, should be done by these returned members, and that the Council be asked to use its influence to attain this object and also to instruct its members to this effect.

Dr. E. H. Burkitt moved the following. It was seconded by Dr. E. M. Ramsden and carried.

That members of the Western Medical Association will not sign certificates of health for contestants in boxing exhibitions. That the Council and sister associations be asked to pass similar resolutions.

It was also resolved, on the proposal of Dr. A. S. Walker, that a special meeting should be held at Orange during the month of July, for the purpose of considering a scheme for the better organization of the medical profession for war purposes. The scheme would be presented by Dr. Walker.

Dr. E. M. Ramsden read a paper on the treatment of the wounded in the field. Dr. S. H. Burkitt read a paper on the treatment of the wounded in casualty clearing stations, and Dr. Lennox G. Teece read a paper on orthopaedic surgery.

These three papers were greatly appreciated by the members, and votes of thanks were passed to the readers and also to the medical practitioners of Parkes, for their hospitality.

Obituary.

WADE SHENTON GARNETT.

The death of Wade Shenton Garnett as the result of severe gun shot wounds adds one more to the long list of our brilliant young graduates who have laid down their lives in their country's cause.

Wade Shenton Garnett was born at Stawell, Victoria, on October 2, 1887. He was the younger son of Mr. W. S. Garnett, formerly Crown Prosecutor, and grand-nephew of the late Sir William Stawell, sometime Chief Justice of Victoria. He received his early education in the town of his birth, and in 1906 passed into the Medical School of the Melbourne University. In the early part of his course he was a resident of Queen's College, and later he became a student of Trinity, whence he graduated with honours at the University in 1910. Anxious to perfect himself for his future professional career, he undertook hospital work for a prolonged period. He served as a resident medical officer first at the Melbourne Hospital, then at the Women's Hospital, and finally at the Children's Hospital. In December, 1914, he obtained the degree of doctor of medicine, and was appointed a clinical assistant at the Melbourne and Children's Hospitals, positions which he held when he joined the

Australian Army Medical Corps in 1915. He was appointed Beany Scholar in Pathology, but was prevented from carrying out any researches in this capacity by his military duties. On April 20, 1916, he received his commission in the Australian Imperial Force, and left Australia in August of the same year. At first he was attached to the 2nd Australian General Hospital at Boulogne. After some months he was transferred to the 12th Field Ambulance, and became Regimental Medical Officer to the 48th Battalion. At the time of his death, which occurred on April 15, 1918, he was attached to the 45th Battalion.

His only brother has been on active service for nearly two years. Wade Shenton Garnett will always be remembered by his friends, both in and outside the profession, for his kind, sympathetic nature, his uniformly good temper and quiet humour, as well as for his modest and retiring disposition. He was buried in the *Cimetière de St. Séver* with military honours, where so many of our gallant and honoured soldiers lie.

Corrigendum.

Our attention has been drawn to a printer's error in Dr. A. S. M. Tynms's letter on the action of the biceps, which appeared in the issue of June 22, 1918. On page 526, right-hand column, 31 lines from the bottom, the sentence should read:—

Without physiological relaxation of the *m. triceps* and its subsequent elongation by the shortening *m. brachialis*, flexion of the elbow is impossible.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xv.

In future, no advertisements inviting applications from medical practitioners for positions in public institutions will be accepted unless the appointment is limited to medical practitioners who are ineligible for military service, or who have returned from military service. The term "ineligible for military service" is used to signify practitioners who are above military age, those who have offered their services and have not been accepted by the military authorities, or those who, for valid reasons, are incapable of applying for a commission in the Australian Army Medical Corps.

Winton Hospital, Queensland, Surgeon.

Lunacy Department, Victoria, Temporary Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London. W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute. Townsville Friendly Societies' Medical Union. Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp. Adelaide. Contract Practice, Appointments at Renmark.

Branch.	APPOINTMENTS.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges. Wellington, N.Z.

Diary for the Month.

- July 9.—Tas. Branch, B.M.A., Council and Branch.
- July 9.—N.S.W. Branch, B.M.A., Ethics Committee.
- July 12.—S. Aust. Branch, B.M.A., Council.
- July 12.—N.S.W. Branch, B.M., Clinical.
- July 16.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
- July 17.—W. Aust. Branch, B.M.A.
- July 18.—Vic. Branch, B.M.A., Council.
- July 19.—Q. Branch, B.M.A., Council.
- July 19.—Eastern Suburbs Med. Assoc. (N.S.W.).
- July 20.—Northern Suburbs Med. Assoc. (N.S.W.).
- July 23.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
- July 25.—S. Aust. Branch, B.M.A.
- July 26.—N.S.W. Branch, B.M.A.
- July 31.—Vic. Branch, B.M.A., Council.
- Aug. 2.—Q. Branch, B.M.A.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The Honorary Librarian of the New South Wales Branch of the British Medical Association is anxious to complete the series of the *Lancet* at present in the library of the Branch, Volume I., January to June, 1898, Volumes I. and II., January to December, 1908, and Volume L., January to June, 1909, are needed for this purpose. The Librarian will be grateful if any member who is able to present to the library one or more of these missing volumes, either unbound or bound, will communicate with the Honorary Secretary of the Branch, Dr. R. H. Todd, B.M.A. Building, 30-34 Elizabeth Street, Sydney.